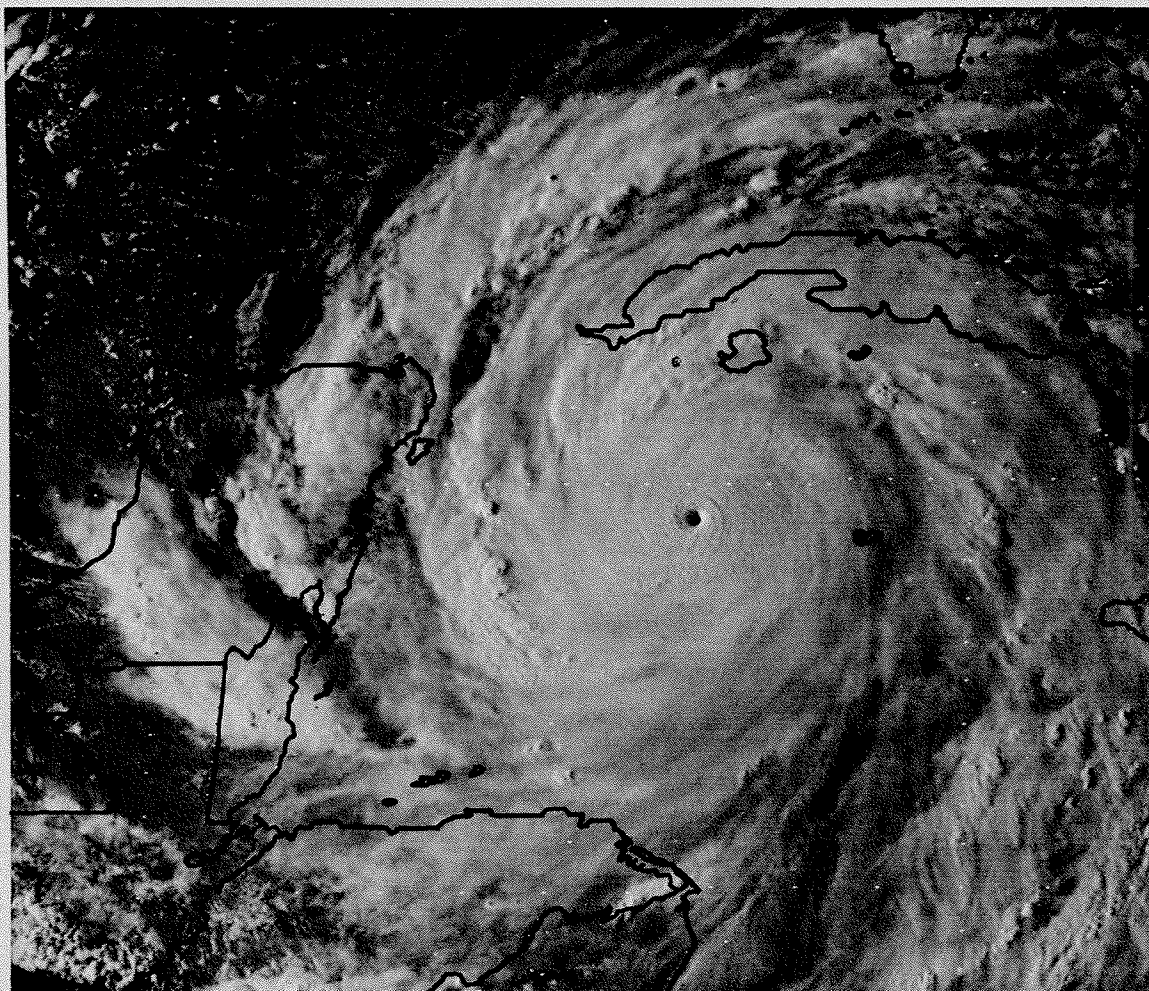
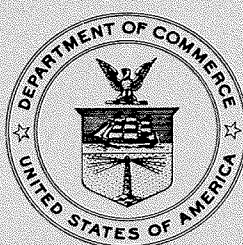


# SELECTIVE GUIDE TO CLIMATIC DATA SOURCES



WASHINGTON, D.C.

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**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
National Environmental Satellite, Data, and Information Service



# Selective Guide to Climatic Data Sources

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Cover Illustration - NOAA weather satellite photo (GOES-7, visible sector, 1-km resolution) of Hurricane Gilbert over the northwest Caribbean Sea (19.5 N/83.5 W) at 2201 GMT (5:01 pm Eastern Standard Time) on September 13, 1988. Central pressure at this time was 885 mb, lowest ever recorded for a Western Hemisphere hurricane. Sustained winds were 160 mph. After having struck Jamaica and the Cayman Islands, the storm moved west northwestward across Cozumel, the Yucatan Peninsula, and inland over the Mexican coast south of Brownsville, Texas. Though damage was enormous, casualties were relatively light due to extensive cooperation between weather services of the U.S., Caribbean, and Central American countries in providing citizens with advance warning of the storm's path. (Photograph courtesy of National Environmental Satellite, Data, and Information Service).

## INTRODUCTION

From the earliest days of colonial America, man's preoccupation with events in the natural world was understood to be more than a curiosity. Then, as now, it was clear that our ability to describe the physical environment was crucial to our development as a nation. The high-technology expanding civilization of today is proof of this, for there is hardly a human activity, or an area of national economy, or an interaction between man and nature that does not use environmental information.

The information used may be of the day-to-day type, which describes and predicts natural events; or it may be of a more historical type, which describes nature as it has been. Fulfilling the national need for such historical documentation is the work of NOAA, the National Oceanic and Atmospheric Administration of the U. S. Department of Commerce, and its National Environmental Satellite, Data and Information Service.

Where these histories are concerned with the envelope of air surrounding planet Earth, and with observations of the processes we call weather, data management activities focus at the National Climatic Data Center (NCDC), Asheville, North Carolina. The NCDC is the largest of four major Centers of the National Environmental Satellite, Data and Information Service, and the largest climatic center in the world.

For researchers in government, private institutions, and industry; for atmospheric scientists and engineers; and for the general public, it is a unique central source of historical weather information and related products. It also administers World Data Center-A, Meteorology, which provides for international data exchange.

As the collection center and custodian of all United States weather records, the National Climatic Data Center obtains data generated by NOAA's National Weather Service, the weather services of the U. S. Air Force, Army, Navy and Marine Corps, the Federal Aviation Administration, the U. S. Coast Guard, and cooperative observers on land, at sea, and in the air. Also included are the cloud photography and other data obtained from environmental satellites.

This GUIDE was designed to assist potential users of climatological (weather) information by acquainting them with the various forms in which these data are archived and the products or publications that are prepared from these data.

Most of the items described in this GUIDE are available from the National Oceanic and Atmospheric Administration, NESDIS, National Climatic Data Center, Federal Building, Asheville, North Carolina 28801-2696. For satellite photography, data, and other products, contact the National Oceanic and Atmospheric Administration, NESDIS, NCDC, Satellite Data Services Division, World Weather Building, Washington, DC 20233. Appropriate ordering instructions are included with each item if it is not available from the NCDC.



This GUIDE provides information on 215 separate climatological data sets filed in the NCDC archives. A brief review of the pertinent historical facts and the basic climatological elements associated with each data set is included.

Digital-users may obtain data on 9-track, odd parity, magnetic tape at 1600 or 6250 bytes per inch density. In most cases, the mode may be ASCII or EBCDIC. Some of the digital data sets listed are filed in the NCDC archives in agreement with other agencies. The responsible agency who created these digital data sets is noted.

Historical publications, manuscript records, autographic records, special tabulations (studies), and various analyzed weather charts are stored on microfiche or microfilm in the NCDC archives for efficient retrieval to service user requests for this information. Users may obtain these historical documents in microforms or as paper copies.

The NCDC has no minimum charge but there is a \$10.00 handling charge for each digital order, or a \$4.00 handling charge for each non-digital order. Since most data sets in this GUIDE are subject to price changes, inserts may be included that provide information on the current price structure.

The NCDC also has the ability to prepare other statistical tabulations, climatological analyses, and special studies other than those listed in this GUIDE. Further information on the cost for preparing such specialized products, or the cost for items listed in this GUIDE, may be obtained from the NCDC. In most cases, users may wish to consult with the NCDC before placing an order since prepayment is required. A meteorologist is available to assist users from 8:00 AM to 4:30 PM Eastern Time, Monday through Friday, on 704-259-0682 or 704-CLI-MATE.

## ACKNOWLEDGEMENTS

I would like to extend my sincere appreciation to the staff of the National Climatic Data Center who provided assistance in the preparation of this GUIDE. Specific acknowledgement is made to Greg Hunolt, Satellite Data Services Division, who authored and provided the items for the Satellite Digital Files chapter; to Ira Taylor, Data Base Administrator, for documentation on selected digital files from the combined NEDRIS Data Dictionary System; and to Juanita Lanham, Information Services Division, for word processing and proofreading services.

# TABLE OF CONTENTS

## Page

Introduction.....	iii
Acknowledgements.....	v
Index.....	xv

## PART I - DATA BASES AND DIGITAL FILES

(TD-1129) Surface Marine Observations.....	1
(TD-1138) NDBO Buoy Observations Archive Format.....	3
(TD-3200) Surface/Land, Daily Cooperative Summary of the Day.....	5
(TD-3210) First Order Summary of the Day.....	7
(TD-3220) Surface/Land Summary of the Month.....	9
(TD-3240) Hourly Precipitation Data-Element.....	11
(TD-3260) 15-Minute Precipitation Data.....	13
(TD-3280) Surface Airways Hourly.....	15
(TD-3290) Summary 6-Hourly Observations.....	17
(TD-3292) Weather Duration.....	19
(TD-5850) Rocketsonde Observations.....	21
(TD-6103) NMC Global GTS Upper Air.....	23
(TD-6106) NMC Global GTS Aircraft.....	23
(TD-6107) NMC Satellite Winds.....	23
(TD-6108) NMC Bogus Upper Air.....	23
(TD-6104) NMC Global GTS Surface Land.....	25
(TD-6105) NMC Global GTS Surface Marine.....	25
(TD-6201) NCDC U.S. Upper Air.....	27
(TD-6202) NCDC GTS Upper Air.....	29
(TD-6203) NCDC GTS AFGWC Upper Air.....	29
(TD-9606, 9609) NMC Pepmerge Grid and Analyses.....	31
(TD-9616) Northern Hemisphere Extratropical Cyclone Movements.....	33
(TD-9617) Lightning Statistics Derived From Storm Data.....	34
(TD-9618) Summary of the Day/Month Observations (Global CEAS).....	35
(TD-9636) Worldwide Consolidated Tropical Cyclones.....	37
(TD-9640) Historical Climate Data.....	38
(TD-9640) Time Biased Corrected Divisional Temperatures.....	41
(TD-9641) Daily Normals.....	44
(TD-9641) Degree Day Normals Selected Bases.....	46
(TD-9641) Monthly Heating and Cooling Degree Day Normals.....	48
(TD-9641) Monthly Normals for Temperature and Precipitation.....	50
(TD-9645) NCAR World Weather Records-Surface.....	52
(TD-9647) Worldwide Airfield Summaries-Print Image.....	53
(TD-9648) NCAR World Monthly Weather Records-Upper Air.....	55
(TD-9649) Short Duration Maximum Precipitation.....	56
(TD-9650) Hourly Precipitation Data Maxes.....	58
(TD-9658) Palmer Drought.....	59
(TD-9680) GARP Atlantic Tropical Experiment (GATE).....	63
(TD-9681) First GARP Global Experiment (FGGE).....	66
(TD-9683) Storm Transfer and Response Experiment (STREX).....	68
(TD-9684) The Alpine Experiment (ALPEX).....	70
(TD-9685) Land Surface Synoptic.....	72
(TD-9689) Mixing Height Studies.....	73
(TD-9697) Storm (Tropical Cyclone) Tracks.....	75
(TD-9703) Atmospheric Absorption/Emission AFGL Compilations and Programs..	76

(TD-9704) NASA Global Atmospheric Sampling Program (GASP).....	79
(TD-9706) Test Reference Year-TRY.....	81
(TD-9711) Upper Air Monthly Statistics (WARMFLUX).....	83
(TD-9712) Freeze Data.....	85
(TD-9714) Tornado Data.....	87
(TD-9724) SOLMET-Hourly Solar Radiation Plus Surface Meteorological Observations.....	88
(TD-9734) Typical Meteorological Year (TMY).....	89
(TD-9736) Post 1976 Hourly Solar Radiation.....	91
(TD-9739) SOLDAY-Daily Solar Radiation.....	93
(TD-9743) ARL BAT Model Wind/Temperature-Input.....	94
(TD-9744) Input Data for Solar Systems.....	95
(TD-9757) Pilot Chart-Sums of Global Atlas MSQ's.....	96
(TD-9760) Marine Atlas Data.....	97
(TD-9767) Station Historical File.....	98
(TD-9773) Stability Array-STAR.....	100
(TD-9781) Digitized Isopleths of the World-Volume IX.....	102
(TD-9782) Spectral Ocean Wave Model-Hindcast.....	103
(TD-9783) Spectral Ocean Wave Model-Hindcast.....	105
(TD-9786) SOWM Parameterized Data.....	107
(TD-9787) Army Wave Information Study-Input.....	108
(TD-9788) Historical Sunshine Data.....	111
(TD-9789) Turbidity Data File.....	113
(TD-9790) Savannah River Experiment.....	115
(TD-9791) Spectral Ocean Wave Model-Operational.....	116
(TD-9792) Pacific Sea Surface Temperature Data.....	118
(TD-9793) Wind Energy Resource Information System.....	119
(TD-9794) SOLMET-Unedited Hourly Solar Radiation.....	122
(TD-9795) Climatic Diagnostics Data Base.....	123
(TD-9796) NOAA Atmospheric Handbook-Data Tables.....	125
(TD-9797) Global Spectral Ocean Wave Model (GSOWM).....	127
(TD-9799) African Historical Precipitation Data.....	128
(TD-9934) Monterey Gridded Atmospheric & Oceanic Data.....	130
(TD-9936) Hawaii-Tahiti (NORPAX).....	136
(TD-9937) North Atlantic Atlas Contours-Volume 1.....	137
(TD-9938) Sea Ice Data Base.....	138
(TD-9942) GFDL Atmospheric Circulation Tape Library.....	141
(TD-9945) Thunderstorm Beginning and Ending Times.....	143
(TD-9999) Miscellaneous Digital Data; DATSAV and OL-A Station Files.....	144

## PART II - SATELLITE DIGITAL FILES

Advanced Very High Resolution Radiometer (AVHRR).....	1
Altimeter (ALT).....	3
Heat Budget.....	4
Mapped Global VIS/IR Radiometer Data.....	5
Scanning Multichannel Microwave Radiometer (SMMR).....	6
Scatterometer.....	7
Sea Surface Temperature (SST).....	8
Synthetic Aperture Radar (SAR).....	9
TIROS Operational Vertical Sounder (TOVS).....	10
TOVS Product.....	12



	<u>Page</u>
Vertical Temperature Profile Radiometer (VTPR).....	13
Visible & Infra-Red Spin Scan Radiometer (VISSR).....	14
VISSR Cloud Motion Vectors (WINDS).....	16

### PART III- STATISTICAL AND SPECIAL STUDIES

A Dust Climatology of the Western United States.....	1
Ceiling Visibility Wind Tabulation.....	3
Climatic Study of the Near Coastal Zone.....	4
Daily Means and Extremes of Temperature, Precipitation, and Snowfall.....	6
Estimating Water Equivalent Snow Depth from Related Meteorological Variables.....	7
Extreme Wind Speeds at 129 Stations in the Contiguous United States.....	8
Historical Extreme Winds for the United States - Atlantic and Gulf of Mexico Coastlines.....	9
Historical Extreme Winds for the United States - Great Lakes and Adjacent Regions.....	9
National Thunderstorm Frequencies for the Contiguous United States.....	11
N-Summary.....	12
Radiosonde Summary.....	14
Service Records Retention System.....	15
Revised Uniform Summary of Surface Weather Observations.....	20
Stability Array (STAR).....	22
Summary of Meteorological Observations, Surface (SMOS).....	24
Summary of Winds Aloft (WBAN-120).....	26
Use of Climatic Data in Estimating Storage Days for Soils Treatment Systems.....	28
U. S. Navy Hindcast Spectral Ocean Wave Model Climatic Atlas - North Atlantic Ocean and North Pacific Ocean.....	29
Wind-Ceiling-Visibility Data at Selected Airports.....	31
Wind Direction Versus Wind Speed Tabulation.....	33

### PART IV - MANUSCRIPT AND AUTOGRAPHIC RECORDS

Barograph Charts.....	1
Buoy Observations (NDBO).....	2
Marine Coastal Weather Log.....	4
Original Monthly Record of Observations (WB Form 1001).....	5
Preliminary Local Climatological Data.....	7
Radar Weather Observations.....	8
Record of Evaporation and Climatological Observations.....	9
Record of River Stage and Climatological Observations.....	9
Ship Weather Observations.....	10
Summary of Constant Pressure Data (WBAN-33).....	11
Summary of Day Form 5670.....	12
Surface Weather Observations.....	13
Triple Register Charts.....	15
Weighing Rain Gage Recorder Charts.....	16
Upper Air Observations.....	17
Wind Gust Recorder Charts.....	18

PART V - MICROFILM AND MICROFICHE FILES

Climatological Record Book.....	1
Composite Moisture Index Charts.....	15
5- to 60-Minute Precipitation Frequency for the Eastern and Central United States, NOAA TECH MEMO NWS HYDRO-35.....	17
Initial Wind Wave Sea Height Charts.....	18
Maximum and Minimum Temperature Chart (12-Hour).....	19
Mean Relative Humidity/Vertical-Velocity Charts.....	21
Miscellaneous Publications.....	22
North American Constant Pressure Charts.....	28
Northern Hemisphere Constant Pressure Charts.....	28
North American Surface Charts.....	29
Northern Hemisphere Surface Charts.....	30
Observed Snow Cover Charts.....	31
Observed 24-Hour Precipitation Charts.....	32
Precipitation Frequency Atlas of the Western United States; NOAA Atlas 2..	33
Radar Plan Position Indicator Scope.....	34
Radar Summary Charts.....	36
Rainfall Frequency Atlas of the United States; U. S. Weather Bureau Technical Paper No. 40.....	37
Southern Hemisphere Constant Pressure Charts.....	38
Southern Hemisphere Surface/1000-500 Millibar Thickness Charts.....	39
Tropical Strip Surface Charts.....	40
Tropical Strip Upper Air Charts.....	41
U. S. Weather Bureau Technical Papers.....	42
Vorticity Charts.....	48
Weather Depiction Analysis Charts.....	49
Winds Aloft Charts.....	50

PART VI - HISTORICAL PUBLICATIONS

Climates of the World.....	1
Climatic Atlas of the Outer Continental Shelf Waters and Coastal Regions of Alaska; Volume I - Gulf of Alaska, Volume II - Bering Sea, Volume III - Chukchi - Beaufort Sea.....	2
Climatic Atlas of the United States.....	3
Climatic Guide for Six U. S. City.....	6
Climatic Summaries for NOAA Data Buoys.....	8
Climatological Data for Amundsen-Scott, Antarctica.....	10
Climatological Data for Arctic Stations.....	12
Climatological Data National Summary.....	14
Climatology of the United States No. 10, Climatic Summary of the United States, Establishment of Station Through 1930 Inclusive (by Section).....	17
Climatology of the United States No. 11, Climatic Summary of the United States, Supplement for 1931 through 1952 (by State).....	17
Climatology of the United States No. 86, Climatic Summary of the United States, Supplement for 1951 through 1960 (by State).....	17
Climatology of the United States No. 82, Summary of Hourly Observations.....	19
Daily River Stages.....	22
High Altitude Meteorological Data.....	23

Historical Climatology Series 1-1, A Long Record of Weather Observations at Cooperstown, New York 1854-1977.....	24
Historical Climatology Series 1-2, Ninety-One Years of Weather Records at Yellowstone National Park, Wyoming 1887-1977.....	24
Historical Climatology Series 1-3, A Long Record of Weather Observations in Southeastern Iowa 1839-1979.....	24
Historical Climatology Series 2-1, Index of Historical Surface Weather Records, New York.....	25
Historical Climatology Series 2-2, A History of Sunshine Data in the United States 1891-1980.....	25
Historical Climatology Series 2-3, Inventory of Sources of Long Term Climatic Data in Microfilm and Publication Form.....	25
Input Data for Solar Systems.....	27
Marine Climatological Summaries.....	28
Mariners Worldwide Climatic Guide to Tropical Storms at Sea.....	30
Monthly Summary Solar Radiation Data.....	32
River Forecasts Provided by the National Weather Service.....	33
Solar Radiation Energy Resource Atlas of the United States.....	34
Storage-Gage Precipitation Data for Western United States.....	36
Summary of Synoptic Meteorological Observations - Coastal Marine Areas.....	37
Summary of Synoptic Meteorological Observations for Great Lake Areas.....	40
Synoptic Weather Maps, Daily Series; Part I - Northern Hemisphere Sea-Level and 500-Millibar Charts, Part II - Northern Hemisphere Data Tabulations.....	43
Tropical Cyclones of the North Atlantic Ocean.....	45
U.S. Air Force AWS Climatological Brief.....	46
U.S. Navy Station Climatological Summary.....	48
U.S. Navy Marine Climatic Atlas of the World.....	51
Worldwide Airfield Summaries.....	52

## PART VII - DECENNIAL AND PERIODIC PUBLICATIONS

Annual Degree Days to Selected Bases.....	1
Comparative Climatic Data.....	2
Climatology of the United States No. 20; Climate of (City).....	3
Climatology of the United States No. 60; Climate of (State).....	5
Climatology of the United States No. 81; Monthly Normals of Temperature, Precipitation, and Heating and Cooling Degree Days (State).....	6
Climatology of the United States No. 84; Daily Normals of Temperature, Heating and Cooling Degree Days and Precipitation.....	9
Climatology of the United States No. 85; Divisional Normals and Standard Deviations of Heating and Cooling Degree Days.....	11
Climatology of the United States No. 85; Divisional Normals and Standard Deviations of Temperature and Precipitation.....	13
Climatology of the United States No. 90; Airport Climatological Summary.....	15
Engineering Weather Data Manual.....	16
Global Atmospheric Background Monitoring for Selected Environmental Parameters-BAPMON DATA.....	18
Historical Climatology Series 3-1; Atlas of Mean Winter Temperature Departures from the Long-Term Mean Over the Contiguous United States, 1895-1983.....	21

	<u>Page</u>
Historical Climatology Series 3-2; Winter.....	22
Historical Climatology Series 3-3; Spring.....	22
Historical Climatology Series 3-4; Summer.....	22
Historical Climatology Series 3-5; Fall.....	22
Historical Climatology Series 3-6; Atlas of Monthly Palmer Hydrological Drought Indices (1895-1930) for the Contiguous United States.....	22
Historical Climatology Series 3-7; Atlas of Monthly Palmer Hydrological Drought Indices (1931-1983) for the Contiguous United States.....	23
Historical Climatology Series 3-8; Atlas of Palmer Moisture Anomaly Indices (1895-1930) for the Contiguous United States.....	23
Historical Climatology Series 3-9; Atlas of Palmer Moisture Anomaly Indices (1931-1983) for the Contiguous United States.....	23
Historical Climatology Series 3-10; Atlas of Monthly Palmer Drought Severity Indices (1895-1930) for the Contiguous United States.....	24
Historical Climatology Series 3-11; Atlas of Monthly Palmer Drought Severity Indices (1931-1983) for the Contiguous United States.....	24
Historical Climatology Series 4-1; State, Regional, and National Monthly and Annual Temperatures Weighted by Area.....	25
Historical Climatology Series 4-2; State, Regional, and National Monthly and Annual Total Precipitation Weighted by Area.....	25
Historical Climatology Series 4-3; Regional and National Monthly, Seasonal, and Annual Temperatures Weighted by Area.....	25
Historical Climatology Series 5-3; Percent of Normal State, Regional, and National Monthly and Seasonal Heating Degree Days Weighted by Population.....	28
Historical Climatology Series 5-4; Percent of Normal State, Regional, and National Monthly and Seasonal Cooling Degree Days Weighted by Population.....	28
Historical Climatology Series 6-1; Statewide Average Climatic History (State).....	29
Monthly Precipitation Probabilities Derived from 1951-1980 Normals (State).....	31
World Weather Records.....	32

#### PART VIII - SUBSCRIPTION PUBLICATIONS

Climatological Data (State).....	1
Daily Weather Maps-Weekly.....	3
Historical Climatology Series 5-1; State, Regional, and National Monthly and Seasonal Heating Degree Days Weighted by Population.....	4
Historical Climatology Series 5-2; State, Regional, and National Monthly and Seasonal Cooling Degree Days Weighted by Population.....	6
Hourly Precipitation Data (State).....	7
Local Climatological Data (City).....	8
Mariners Weather Log.....	10
Monthly Climatic Data for the World.....	12
Storm Data.....	13
Weekly Weather and Coop Bulletin.....	15



PART IX - INDEXES

Index of Original Surface Weather Records (State).....	1
Star Tabulations Master List.....	2
Station List - Climatology of the United States No. 20, Through 1985 (State).....	3
Wind Summary Index.....	4

1  
2  
3  
4  
5  
6  
7  
8  
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11  
12  
13  
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INDEX OF CLIMATOLOGICAL DATA BY ELEMENT

CARBON DIOXIDE

Daily: I-79, VIII-18

CEILING, SKY CONDITION, OR SKY COVER

Hourly or

3-Hourly: I-1, 3, 15, 25, 63, 66, 68, 70, 72, 81, 88, 89, 97, 144; III-15;  
IV-2, 4, 5, 8, 10, 13; V-29, 34, 49; VIII-8.

Daily: I-93; III-15; IV-5, 7; V-1, 30, 40; VI-10, 12, 43; VIII-8, 10.

Monthly/Annual: IV-5, 7; V-1; VIII-8

Long Period: I-53, 96, 102, 137; III-4, 20, 24; V-22; VI-2, 3, 6, 8, 17, 19,  
28, 37, 40, 46, 48, 51, 52; VII-5, 15; VIII-8.

DEW-POINT TEMPERATURE

Hourly or

3-Hourly: I-1, 3, 15, 25, 63, 66, 68, 70, 72, 81, 88, 89, 97, 136, 144;  
III-15; IV-2, 5, 10, 13; V-1, 29; VIII-8.

Daily: I-93; III-15; IV-5; V-30, 40; VI-10, 12, 43; VIII-8, 10.

Monthly/Annual: IV-5; VIII-8.

Long Period: I-96, 102, 137; III-4, 20, 24; V-22; VI-2, 3, 6, 8, 10, 28, 37,  
40, 46, 48, 51; VII-5, 15.

DROUGHT

Weekly: I-59; VIII-15.

Monthly/Seasonal: I-38, 59; VII-22, 23, 24; VIII-15.

EVAPORATION

Daily: I-5; IV-9; VIII-1.

Monthly/Annual: I-5; IV-9; VIII-1.

Long Period: V-22; VI-3, 17.

#### FREEZE DATA

Annual: I-85; VIII-1.

Long Period: I-85; V-1; VI-3, 17, 24; VII-3, 5.

#### HEATING AND COOLING DEGREE DAYS

Daily: I-5, 7; III-15; IV-7; VIII-8.

Monthly/Annual: III-15; IV-7; VIII-1, 4, 8, 15.

Long Period: I-44, 46, 48, 95; VI-3, 14, 27; VII-1, 3, 5, 6, 9, 11, 16, 28, 29; VIII-4, 6, 8.

#### HURRICANES AND TROPICAL STORMS

3-Hourly or

6-Hourly: I-37, 75; III-15; V-29, 30, 34, 40, 49; VI-14, 45; VIII-10, 13.

Monthly/Annual: VI-14, 45; VIII-10, 13.

Long Period: I-37, 75; VI-30, 45.

#### LIGHTNING

Daily: I-1, 3, 15, 34; III-15; IV-2, 4, 5, 7, 10, 13; VIII-8, 13.

Monthly/Annual: I-34; IV-5; V-1; VI-14; VIII-13.

Long Period: I-34; V-1; VI-14; VIII-13.

#### MARINE CLIMATE

Daily: I-1, 3, 25, 37, 63, 66, 75, 97, 103, 105, 107, 108, 116, 127, 138; II-8; IV-2, 4, 10; V-18, 30, 39, 40; VI-43, 45; VIII-10.

Monthly/Annual: II-8; VIII-10, 13.

Long Period: I-1, 3, 37, 96, 97, 102, 103, 105, 107, 108, 137, 138; III-4, 29; VI-2, 8, 28, 30, 37, 40, 45, 51.

#### PRECIPITATION

Hourly/3-Hourly

or 6-Hourly: I-11, 13, 17, 56, 58; IV-13, 15, 16; VIII-7, 8.

Daily: I-5, 7, 11, 13, 17, 35; IV-5, 7, 9, 12, 13, 15, 16; V-1, 32; VIII-1, 3, 7, 8.



Monthly/Annual: I-9, 11, 13, 35, 38, 50, 52, 128; V-1; VI-10, 12, 14, 17, 24, 36; VII-25, 31, 32; VIII-1, 7, 8, 12.

Long Period: I-5, 7, 9, 11, 13, 17, 35, 38, 50, 52, 53, 128; III-6, 7, 12, 20, 24, 28; V-1, 17, 33, 37, 42; VI-1, 5, 6, 17, 19, 24, 46, 48, 52; VII-3, 5, 6, 9, 13, 15, 25, 29, 31, 32; VIII-8.

#### PRESSURE

Hourly or

3-Hourly: I-1, 3, 15, 25, 63, 66, 68, 70, 72, 81, 88, 89, 144; III-15; IV-1, 2, 5, 10, 13; V-29, 40; VIII-8.

Daily: I-7, 93; IV-1, 5; V-1, 30, 40; VI-10, 12; VIII-8.

Monthly/Annual: I-52; V-1, VII-32; VIII-8.

Long Period: I-52, 102, 137; III-20, 24; V-1; VI-10, 46, 48, 51; VII-5, 15, 32; VIII-8.

#### RADAR

Hourly or

3-Hourly: III-15; IV-8; V-34, 36.

#### RELATIVE HUMIDITY

Hourly or

3-Hourly: I-15; IV-5, 13; VIII-8.

Monthly/Annual: VIII-8.

Long Period: I-53, 102; III-12, 20, 24; VI-3, 6, 10, 17, 19, 46, 48, 51, 52; VII-5, 15; VIII-8.

#### RIVER GAGE DATA

Daily: IV-9; VI-22.

Monthly/Annual: VI-22.

Long Period: VI-22.

#### SNOW

Daily: I-5, 7; IV-5, 7, 9, 12, 13; V-31; VIII-1, 8.

Monthly/Annual: I-5, 7, 9; IV-5, 7, 12; V-1; VI-3, 10, 12, 14, 17; VIII-1, 8.

Long Period: I-5, 53; III-20, 24; V-1; VI-3, 6, 10, 17, 46, 48, 52; VII-3, 5; VIII-8.

### SOIL TEMPERATURE

Daily: I-5; IV-9; VIII-1

Monthly/Annual: VIII-1.

### SOLAR RADIATION

Hourly: I-88, 89, 91, 122; VI-32.

Daily: I-93; VI-32.

Monthly/Annual: VI-14, 32.

Long Period: I-95; VI-5, 27, 34.

### STABILITY

6-Hourly: V-15, 21, 48.

Daily: I-73.

Monthly/Annual: I-100; III-22.

Long Period: I-73, 100; III-22.

### SUNSHINE

Hourly or

3-Hourly: I-88, 91, 111; IV-15.

Daily: I-7, 88, 91, 93, 111; IV-12, 15; VIII-8.

Monthly/Annual: I-7, 111; V-1; VI-14; VIII-8.

Long Period: I-111; V-1; VI-3, 6, 17; VII-5; VIII-8.

### TEMPERATURE

Hourly or

3-Hourly: I-1, 3, 15, 25, 63, 66, 68, 70, 72, 81, 88, 89, 97, 115, 144;  
III-15, IV-2, 5, 10, 13; V-29, 40; VIII-8.

Daily: I-5, 7, 35, 93; III-15; IV-5, 7, 9, 12; V-1, 19; VIII-1, 3, 8.

Monthly: I-9, 35, 50, 52; IV-5, 7; V-1; VI-14, 24; VII-3, 25, 29, 32;  
VIII-1, 8.

Annual: I-9, 38, 41, 50, 52; V-1; VI-6, 14, 17, 24; VII-3, 21, 22, 25, 29, 32;  
VIII-1, 4, 8, 12.

Long Period: I-41, 44, 50, 52, 53, 102, 137; III-4, 6, 12, 20, 24; V-1; VI-1,  
2, 3, 6, 8, 10, 17, 19, 24, 27, 28, 37, 40, 46, 48, 51, 52;  
VII-3, 5, 6, 9, 13, 15, 16, 21, 25, 29, 32; VIII-8.

#### TORNADOES

Daily: I-87, IV-8, V-34, 36; VI-14; VIII-13.

Monthly/Annual: VIII-13.

Long Period: I-87, VIII-13.

#### TURBIDITY

Daily: I-113; VII-18.

Monthly/Annual: I-113; VII-18.

#### UPPER AIR

Daily: I-21, 23, 27, 29, 63, 66, 68, 70, 76, 79, 94, 123, 130, 141; III-15;  
IV-11, 17; V-15, 28, 38, 39, 41, 48, 50; VI-23; VIII-3.

Monthly/Annual: I-21, 55, 83, 123, 141; IV-11; VI-14; VIII-12.

Long Period: I-21, 55, 123, 141; III-14, 26.

#### VAPOR PRESSURE

Monthly/Annual: I-52; VIII-12.

Long Period: I-52; VI-46, 48; VII-15.

#### VISIBILITY

Hourly/

3-Hourly: I-1, 3, 15, 25, 63, 66, 68, 70, 72, 81, 88, 89, 97, 144; III-15;  
IV-2, 4, 5, 10, 13.

Daily: VI-43.

Long Period: I-53, 102, 137; III-4, 12, 20, 24, 31; VI-2, 6, 8, 10, 19, 28,  
37, 40, 46, 48, 51, 52; VII-15; VIII-8.

WEATHER AND/OR OBSTRUCTION TO VISION

Hourly/

3-Hourly: I-1, 3, 15, 19, 63, 66, 68, 70, 72, 81, 89, 96, 97, 144; III-15;  
IV-2, 4, 5, 10, 13; V-49; VIII-8.

Daily: I-17; IV-7, 13; VI-43; VIII-8, 13.

Long Period: I-53, 102, 137; III-4, 20, 24; VI-2, 8, 10, 28, 37, 40, 46, 48,  
51; VII-15.

WIND DIRECTION AND SPEED

Hourly/

3-Hourly: I-1, 3, 15, 25, 63, 66, 68, 70, 72, 81, 88, 89, 97, 144; III-15;  
IV-2, 4, 5, 10, 13, 15, 18; VIII-8.

Daily: I-7; IV-7; V-1, 50; VI-10, 12, 43; VIII-8.

Monthly/Annual: IV-7; VI-14; VIII-8.

Long Period: I-96, 100, 102, 107, 119, 137; III-3, 4, 8, 9, 12, 20, 22, 24, 31,  
33; V-1; VI-2, 3, 6, 8, 10, 19, 28, 37, 40, 46, 48, 51; VII-5,  
15; VIII-8.

WORLD CLIMATE

Hourly/

3-Hourly: I-1, 21, 25, 63, 66, 68, 70, 72, 97, 113, 144; III-15; IV-10, 13.

Daily: I-21, 23, 27, 29, 33, 35, 37, 75, 79, 103, 105, 107, 108, 116, 127;  
II-1, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 16; V-18, 21, 28, 30, 38, 39,  
40, 41; VI-23, 43; VII-18.

Monthly/Annual: I-35, 52, 55, 125, 128; VI-10, 12, 23; VII-16, 18, 32;  
VIII-10-12.

Long Period: I-53, 55, 96, 102, 125, 137, 138, 141; III-4, 12, 20, 24, 26, 29;  
VI-1, 10, 28, 30, 37, 46, 48, 51, 52.



FILE TAG: FA00876.

FILE NAME: SURFACE MARINE OBSERVATIONS (TD-1129).

TIME PERIOD: January 1, 1970 through the present (updated monthly).

GEOGRAPHIC COVERAGE: Global. See microfiche inventory TD-1129 by Marsden Square for the number of ships observations by year-month, or buoy observations by buoy number.

FILE SIZE: 200 magnetic tapes; 9-track, odd parity (38 tapes 1600 bpi) 6250 bpi, ASCII mode, labeled. Copies of these data, selected by Marsden Square, (subsquare) or buoy number, are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: 148 characters per record, 70 records per block.

FILE STRUCTURE: Surface marine observations in this file are obtained from several sources. Most of these marine observations are filed on 28 magnetic tapes for the decade 1970-1979, annual magnetic tapes for 1981, 1982, 1983, 1984, and monthly magnetic tapes thereafter. There are also 29 separate magnetic tapes of buoy observations for the period 1970 to date; 13 magnetic tapes of foreign exchange ("926" observations) marine observations for the period 1965 through 1983; and 3 magnetic tapes of Great Lakes marine observations for 1982, 1983, and 1984. Data are sorted on each magnetic tape by Marsden Square, subsquare, ship position, year, month, day.

CONTENTS: The major parameters that make up this file are ship position (latitude, longitude), wind direction (degrees to 10ths), wind speed (knots), visibility (coded), present and past weather (coded), sea level pressure (MB), dry bulb, wet bulb, dewpoint, sea surface temperature, air-sea temperature difference (Deg. C), total cloud amount (oktas), and wave and sea swell heights (1/2 meters) and periods (coded, seconds).

ABSTRACT: This data file contains surface marine observational data obtained from numerous and varied sources. Beginning with January 1970, NCDC is uniformly editing these data and merging them into a single file. This resultant file is a higher quality data base which will provide more economical service to surface marine data users. The NCDC reviewed all available marine sources for quality and uniqueness and selected those which added significantly to this file. The sources were as follows: Pacific Marine Environmental Laboratory, U.S.S.R. Ice Island observations, U.S. Navy Fleet Numerical Oceanography Center, First Garp Global Experiment, NOAA Data Buoy Center, National Meteorological Center, U.S. Air Force Global Weather Center, Autodin, Great Lakes manuscript records, U.S. Merchant Marine manuscript records, U.S. Navy manuscript records, foreign exchange, and Ocean Station Vessels.

Processing surface marine observations is complicated since 1) data are from various sources, both foreign and domestic, 2) the quality of these data is sometimes poor, 3) data are recorded on different media, such as magnetic tape punched cards, and manuscript forms, 4) data formats are different, and 5) numerous data sources introduce duplicate observations. Surface marine observations received by the NCDC are converted into the format of this file, quality controlled, duplicate observations eliminated, and merged.

The quality control procedure checks each surface marine observation for internal consistency, extreme values, legal codes, and ship position changes. The results of this editing are then passed on to the user in the form of quality indicators (flags). In this processing system, the original data are left unchanged. The end products of this processing are area sort files and inventories by 10-degree Marsden Squares. A related file TD-9760 contains the historical surface marine observations.

This file is available for purchase from the NCDC.

FILE TAG: FA00008.

FILE NAME: NDBO BUOY OBSERVATIONS ARCHIVE FORMAT (TD-1138).

TIME PERIOD: October 1, 1979 through the present (updated monthly).

GEOGRAPHIC COVERAGE: United States coastal marine (BUOY) and headland (C-MAN) stations for the Great Lakes, North Atlantic Ocean, North Pacific Ocean, Gulf of Alaska, Gulf of Mexico, and Hawaiian Islands areas.

FILE SIZE: 159 magnetic tapes; 9-track, odd parity, ASCII mode, labeled. Copies of these data, or copies of data for selected BUOY or C-MAN stations, are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: 120 characters per record, 34 records per block.

FILE STRUCTURE: There are approximately 2 magnetic tapes per month in this file. Data are sorted on each magnetic tape by station ID (BUOY or C-MAN No.), GMT time (year, month, day, hour, minute).

CONTENTS: The major parameters that make up this file are; air and dew point temperature (Deg. C to 10ths), sea level pressure (MB to 10ths), wind direction (degrees to 10ths), wind speed (meters/sec. to hundredths), current weather (coded), visibility (nautical miles to 10ths), precipitation (accumulation in mm), solar radiation (if available, in Langley's per minute), sea surface temperature (Deg. C to hundredths), significant wave height (meters to 10ths) and average wave period (seconds to 10ths). Also included are wave spectra data including frequency (center frequency of interval in Hertz to thousandths), resolution (width of interval in Hertz to ten-thousandths), and density (spectral density within the interval in  $m^2/Hz$  to thousandths).

ABSTRACT: Forecasts and the issuances of watches and warnings by the National Weather Service (NWS) in the marine and coastal areas of the United States depend, for the most part, on meteorological observations. The marine environment poses unique problems to the acquisition and collection of these observations. New electronic hardware had to be developed by the NOAA Data Buoy Center (NDBC) to ensure the uninterrupted operation of a remote weather observing system in a severe marine environment. The NDBC was also given the task of outfitting the network with environmental data systems having proven basic measurement capabilities, but with provisions to accommodate expansion to meet NWS desired meteorological observations when appropriate sensors become available.

Buoy observations have been converted to the TD-1129 format and stored in that file since January 1, 1970, but are only stored in this file since October 1, 1979. The conversion process does not, however, include wave spectra data. The Coastal-Marine Automated Network (C-MAN) data were added to this file in March 1983, but most of the 40 odd C-MAN stations were established in 1984.

Meteorological observations are not the only data recorded by NDBO BUOY and C-MAN stations. Oceanographic observations on such parameters as salinity, subsurface temperatures, and ocean currents are also measured. These data are available from the National Oceanographic Data Center, NESDIS, NOAA, Washington, DC 20235.

Documentation TD-1138 (NDBO) archive Tape Format is included with each order for digitized data from this file.

This file is available for purchase from the NCDC.

FILE TAG: FA00242.

FILE NAME: SURFACE/LAND, DAILY COOPERATIVE SUMMARY OF THE DAY (TD-3200).

TIME PERIOD: 1850's through the present (updated monthly).

GEOGRAPHIC COVERAGE: All States, U.S. Caribbean Islands, U. S. Pacific Islands and Puerto Rico. See the microfiche inventory TD-3200 for the period of record for each station.

FILE SIZE: 119 magnetic tapes; 9-track, odd parity, 6250 bpi, ASCII mode, labeled. Copies of these data, or copies of data selected by element, are available on magnetic tape or other media.

FORMAT: ANSI variable length records with no more than 12,000 characters per block. NCDC can output on magnetic tape;

1. ASCII mode, variable length records, labeled or unlabeled,

THESE OPTIONS ARE AVAILABLE AT ADDITIONAL COST

2. ASCII mode, fixed length records, labeled or unlabeled, 402 characters per record, 15 records per block,
3. EBCDIC mode, variable length records, unlabeled,
4. EBCDIC mode, fixed length records, unlabeled, 402 characters per record, 15 records per block.

FILE STRUCTURE: Data in this file are archived in the NCDC element format. Each State, except California and Texas, is stored on one to three reels of magnetic tape for the complete period of record through the latest calendar year. California is stored on 5 reels and Texas on 7 reels of magnetic tape. The U.S. Caribbean Islands and U.S. Pacific Islands are stored on separate reels of magnetic tape. In addition, each state, or area, is stored on one reel of magnetic tape for the latest 5 calendar years but more than one state is stored on the same reel. All states and areas are also merged on two reels of magnetic tape for the latest calendar year and monthly reels of magnetic tape for the current year. These data are stored on each tape by State number, Station index number, time and element.

CONTENTS: The major parameters that make up this file are; DYSW-daily occurrence of weather (type, coded), EVAP-daily evaporation-not reported when temperature is below freezing (in.), MNPn-daily minimum temperature of water in evaporation pan-effective September 1963 (Deg. F), MXPn-daily maximum temperature of water in

evaporation pan-effective September 1963 (Deg. F), PRCP-daily precipitation (in.), SNOW-daily snowfall (in.), SNWD-snow depth at observation time (in.), TMAX-daily maximum temperature (Deg. F), TMIN-daily minimum temperature (Deg. F), TOBS-temperature at observation time (Deg. F), WDMV-24 hour wind movement (miles), WTEQ-water equivalent of snow on the ground (in.), SOyz-soil temperature at observation time (Deg.F), and SXyz-daily maximum soil temperature (Deg. F). and SNyz-daily minimum soil temperature (Deg. F). Some stations may report soil temperatures at observation time twice daily in which case separate records will occur for both observation times. The recorded soil temperatures are at selected depths that may be 2, 4, 8, 20, or 40 inches.

**ABSTRACT:**

This file is a compilation of daily observations initially obtained from state universities, state cooperatives, and the National Weather Service. Currently, there are approximately 8,000 active stations, known as cooperative observers, but data are in these files for approximately 23,000 stations for various years. Selected summary of the day data from related file TD-3210 for National Weather Service first order and second order stations are also included in this file.

The period of record and number of stations varies among the states. Most states began collecting data during 1948, but some began in 1946. Prior to 1948, most of these data were collected through cooperative agreements with state universities and other state organizations. Many years were digitized with some going as far back as the 1850's.

Since 1982 these data have received a high measure of quality control through computer and manual edits. These data are subjected to internal consistency checks, compared against climatological limits, checked serially, and evaluated against surrounding stations. Quality control "flags" are appended to each element to show how they fared during the edit procedures and to indicate what, if any, action was taken. The files then, consist of observed values and, as necessary, best guess estimates. The historical data were converted from existing files and although placed in the element structure format, were processed through a gross value check and not the new (1982) edit system.

The user will routinely receive the observed and edited values on magnetic tape, but the observed values only can be furnished on demand. Most of these data are also contained in related "CLIMATOLOGICAL DATA (STATE)" publication files.

This file is available for purchase from the NCDC.

FILE TAG: FA00769.

FILE NAME: FIRST ORDER SUMMARY OF THE DAY (TD-3210).

TIME PERIOD: U.S. Air Force January 1, 1949-December 31, 1970; U.S. Navy January 1, 1945 to the present; National Weather Service January 1, 1949 to the present, and selected stations for varying periods of record January 1, 1883 to the present (updated monthly). See microfiche inventory TD-3210 for the period of record for each station.

FILE SIZE: 17 magnetic tapes; 9-track, odd parity, 6250 bpi, ASCII mode, labeled. Copies of these data, or copies of data for selected stations, are available on magnetic tape and other media.

FORMAT: ANSI variable length records with no more than 12,000 characters per block. NCDC can output on magnetic tape;

1. ASCII mode, variable length records, labeled or unlabeled,

THESE OPTIONS ARE AVAILABLE AT ADDITIONAL COST

2. ASCII mode, fixed length records, 402 characters per record, 15 records per block, labeled or unlabeled.
3. EBCDIC mode, variable length records, unlabeled,
4. EBCDIC mode, fixed length records, 402 characters per record, 15 records per block, unlabeled.

FILE STRUCTURE: Historical data for one station are on one reel of magnetic tape from the beginning of record through the latest calendar year, but more than one station are on the same tape. All stations are merged on one magnetic tape for the latest calendar year. All stations, except U.S. Navy which are located on monthly magnetic tapes, are merged on one magnetic tape for the current year. Data are sorted on each magnetic tape by record type (DLY), station ID (WBAN NO.), element type, and time (year, month, day).

CONTENTS: The major parameters that make up this file are; 24-hour maximum and minimum temperatures (Deg. F), average temperature with departure from normal (Deg. F), precipitation (in.), snowfall (in.), snowdepth (in.), maximum wind speed (knots) with direction, maximum and minimum relative humidity (%-discontinued after December 1964), weather occurrences (coded), sky cover sunrise to sunset and midnight to midnight (average in 10ths), total sunshine (hours and 10ths), percent of possible sunshine (%), and heating degree days (base 65 Deg. F). The file beginning with January 1, 1984 also includes

daily; time of maximum wind, average dew point temperature (Deg. F), average wet bulb temperature (Deg. F), average relative humidity (%), average station pressure (in. hg), average sea level pressure (MB), average wind speed (mph), resultant wind direction (degrees) and speed (mph), and cooling-degree days (base 65 Deg. F).

**ABSTRACT:**

This file contains daily data that are measured primarily by National Weather Service, Federal Aviation Administration, and U.S. Military operated stations and recorded on MF1-10 forms. The observations are generally recorded for the 24-hour period midnight to midnight. Through the years, approximately 1,380 principal stations have recorded observations. In 1985, there are approximately 428 active stations being processed for inclusion in this file.

Historical data through 1983 were converted into this file format from previous digital files. Quality checks on valid identification, duplicate records, legitimate values, number of days in the month, etc., were completed during this conversion process. All the undecodable elements were also deleted from this file at that time.

Data processed after 1983 contain both the original observed and the edited values enabling the user a choice. The term original observed data means values actually recorded. Some errors (less than 1%) may occur in this file through the original key entry processing. Edited data are replacement or "updated edit" values when original values failed edit checks.

Related files are MF1-10 (or predecessor forms), SUMMARY OF THE DAY forms, LOCAL CLIMATOLOGICAL DATA publications, and TD-3200.

This file is available for purchase from the NCDC.



FILE TAG: FA00436.

FILE NAME: SURFACE/LAND SUMMARY OF THE MONTH (TD-3220).

TIME PERIOD: January 1, 1885 to the present (updated monthly). See microfiche inventory TD-3220 for the period of record for each station.

GEOGRAPHIC COVERAGE: United States, U.S. Pacific Islands, U.S. Virgin Islands and Puerto Rico.

FILE SIZE: 20 magnetic tapes; 9-track, odd parity, 6250 bpi; ASCII mode, labeled. Copies of these data, or copies of data for selected stations, are available on magnetic tape and other media.

FORMAT: ANSI variable length records with no more than 12,000 characters per block. NCDC can output on magnetic tape;

1. ASCII mode, variable length records, labeled or unlabeled,

THESE OPTIONS ARE AVAILABLE AT ADDITIONAL COST

2. ASCII mode, fixed length records, 186 characters per record, 30 records per block, labeled or unlabeled,
3. EBCDIC mode, variable length records, unlabeled,
4. EBCDIC mode, fixed length records, 186 characters per record, 30 records per block, unlabeled.

FILE STRUCTURE: Data for each state or area are filed on one reel of magnetic tape for the period of record through the latest calendar year, but data for more than one state or area are located on the same tape. All data are merged on one reel of magnetic tape for the current year. These data are sorted on each magnetic tape by State number, State Index number within the State, element type, year, month. In addition, there are two reels of magnetic tape containing data for Canada and the Caribbean area from January 1960 through December 1967 and five reels of magnetic tape with State Climatic Divisional precipitation and temperature data from January 1980 through the latest calendar year.

CONTENTS: The major parameters that make up this file are monthly; maximum and minimum temperatures (Deg. F), mean temperature with departure from normal (Deg. F), total precipitation with departure from normal (in.), total snowfall (in.), maximum snowdepth (in.), extreme high and low temperatures (Deg. F), freeze data (dates), evaporation (in.), and heating-degree and cooling-degree days (base 65 Deg. F). Cooling-degree days started in January 1980.

**ABSTRACT:**

The Surface Land Summary of the Month (SOM) data file is a compilation of daily weather observations initially obtained from State Universities, State Cooperatives, and the National Weather Service. Prior to 1948, most data were collected from State Universities and organizations.

Summary of the Month data were converted to this file initially for the period of record through 1979 from previous digital files. Quality checks on identification, duplicate records, legitimate values, number of days in the month etc., were completed during the conversion process. Since then, this file is a by-product of editing and summarization of the TD-3200 data file. Data are available in this file for approximately 23,000 stations for varying periods of record and include National Weather Service first order stations. Related files are TD-3200, TD-3210, TD-3240, and CLIMATOLOGICAL DATA (State) publications.

This file is available for purchase from the NCDC.

FILE TAG: FA00402.

FILE NAME: HOURLY PRECIPITATION DATA-ELEMENT (TD-3240).

TIME PERIOD: August 1, 1948 through the present (updated monthly).

GEOGRAPHIC COVERAGE: United States, U.S. Pacific Islands, U.S. Virgin Islands, and Puerto Rico. See the microfiche inventory TD-3240 for the period of record for each station.

FILE SIZE: 14 magnetic tapes; 9-track, odd parity, 6250 bpi, ASCII mode, labeled. Copies of these data, or copies of data for selected stations, are available on magnetic tape and other media.

FORMAT: ANSI variable length records with no more than 12,000 characters per block. NCDC can output on magnetic tape;

1. ASCII mode, variable length records, labeled or unlabeled,

THESE OPTIONS ARE AVAILABLE AT ADDITIONAL COST

2. ASCII mode, fixed length records, 42 characters per record, 150 records per block, labeled or unlabeled,
3. EBCDIC mode, variable length records, unlabeled,
4. EBCDIC mode, fixed length records, 42 characters per record, 150 records per block, unlabeled.

FILE STRUCTURE: Each State's data are located on one reel of magnetic tape from August 1, 1948 through the latest calendar year, but more than one State's data are located on the same tape. The file for Hawaii started in March 1965; Puerto Rico and the U.S. Virgin Islands in July 1971. The file for Alaska contains only National Weather Service 1st order stations data. All State's data are merged on one reel of magnetic tape for the current year. Data are sorted on each magnetic tape by State number, Station index number within the State, element type, year, month, day. Missing values of hourly precipitation data are indicated, but, to save space on the tape, no entries are made for hours without precipitation.

CONTENTS: The major parameters that make up this file are hourly, daily, and accumulated totals of precipitation. Depending on the station, totals are "observed" to the nearest tenth or one-hundredth inch. These totals are, however, stored in this file to the nearest one-hundredth inch.

ABSTRACT: The primary source of data for this file is approximately 5,500 National Weather Service and Cooperative Observer stations that recorded hourly

precipitation data during some or all of the time from August 1, 1948 to the present.

The records are sent to the NCDC who digitize the hourly precipitation data which are then quality controlled and sometimes replaced, based on automated and manual edit. Beginning with the 1984 data, the hourly precipitation data were processed through a completely revised system which produces an element structure database file. Data are being subjected to new computer editing procedures that reduce manual handling. Data before 1984 were converted from existing digital files to the element structure format and were processed through a gross value check and not the new edit system. There are no known data problems. Related data files are the HOURLY PRECIPITATION DATA publication, TD-3260, TD-9649, and TD-9650.

Quality controlled hourly precipitation data, for all stations active from 1979 through 1983 and who recorded at least 10 years of data during the years 1956 through 1983, are also available on one microfiche per station.

This file is available for purchase from the NCDC.

FILE TAG: FA00403.

FILE NAME: 15-MINUTE PRECIPITATION DATA (TD-3260).

TIME PERIOD: May 1, 1971 through the present (updated monthly).

GEOGRAPHIC COVERAGE: United States except Alaska, U.S. Pacific Islands, U.S. Virgin Islands, and Puerto Rico. See the microfiche inventory TD-3260 for the period of record for each station.

FILE SIZE: 5 magnetic tapes; 9-track, odd parity, 6250bpi, ASCII mode, labeled. Copies of these data, or copies of data for selected stations, are available on magnetic tape and other computer media.

FORMAT: ANSI variable length records with no more than 12,000 characters per block. NCDC can output on magnetic tape;

1. ASCII mode, variable length records, labeled or unlabeled,

THESE OPTIONS ARE AVAILABLE AT ADDITIONAL COST,

2. ASCII mode, fixed length records, 42 characters per record, 150 records per block, labeled or unlabeled,
3. EBCDIC mode, variable length records, unlabeled,
4. EBCDIC mode, fixed length records, 42 characters per record, 150 records per block, unlabeled.

FILE STRUCTURE: Each State's data from May 1971 through the latest calendar year are located on one reel of magnetic tape but more than one State's data are located on the same tape. The file for Puerto Rico and the U.S. Virgin Islands started in July 1971. Alaska does not have stations equipped with Fisher-Porter type weighing rain gauges. All State's data are merged on one reel of magnetic tape for the current year. Data are sorted on each magnetic tape by State number, Station index number within the State, element type, year, month, day. Missing data are indicated but, to save space on the tape, no entries are made for times without precipitation.

CONTENTS: The major parameters that make up this file are 15-minute, hourly, daily, and accumulated totals of precipitation to the nearest tenth inch.

ABSTRACT: The primary source of data for this file is National Weather Service operated or managed, principal, secondary, or cooperative observer stations equipped with Fisher-Porter type weighing rain gauges. The NCDC receives these data monthly from approximately 2,000 reporting stations.

These precipitation data are recorded on punched paper tape which are translated to magnetic tape, converting raw data values to 15-minutes and hourly values, quality controlled, and sometimes replaced, based on automated and manual edits. Beginning with the 1984 data, the 15-minute data were processed through a completely revised system. These data are subjected to new computer editing procedures that reduce manual handling. Data before 1984 were converted from existing digital files to the element structure format and were processed through a gross value check and not the new edit system. There are no known data problems. Related files are TD-3240, TD-9649, and TD-9650.

This file is available for purchase from the NCDC.

FILE TAG: FA00770.

FILE NAME: SURFACE AIRWAYS HOURLY (TD-3280).

TIME PERIOD: January 1, 1945 through the present (updated monthly).

GEOGRAPHIC COVERAGE: United States, U. S. Pacific Islands U. S. Virgin Islands, Puerto Rico, and selected U.S. Military stations worldwide.

NCDC can also recover worldwide stations data by WMO station number from TD-9999 U. S. AIR FORCE DATSAV (3 hourly or hourly) files for periods of record after 1972 at an additional cost. See the microfiche inventories TD-3280 and TD-9999 for the period of record for each station.

FILE SIZE: 519 magnetic tapes; 9-track, odd parity, 6250bpi, ASCII mode, labeled. Copies of these data selected by station are available on magnetic tape and other media.

FORMAT: ANSI variable length records with no more than 12,000 characters per block. NCDC can output on magnetic tape;

1. ASCII mode, variable length records, labeled or unlabeled,

THESE OPTIONS ARE AVAILABLE AT ADDITIONAL COST

2. ASCII mode, fixed length records 1) 318 characters per record, 20 records per block 2) 495 characters per record, 4 records per block 3) 80 characters per record, 10 records per block, labeled or unlabeled,

3. EBCDIC mode, variable length records, unlabeled,

4. EBCDIC mode, fixed length records 1) 318 characters per record, 20 records per block 2) 495 characters per record, 4 records per block 3) 80 characters per record, 10 records per block, unlabeled.

FILE STRUCTURE: There are 365 active stations whose data are stored on one magnetic tape per station for the period of record through the latest calendar year. These active stations data are also merged on four magnetic tapes for the latest calendar year and four magnetic tapes for the current year. In addition, there are approximately 1,015 inactive stations whose data for varying periods of record are merged on 146 magnetic tapes. Data are sorted on each magnetic tape by record type (HLY) station ID (WBAN NO.), element type, and time (year, month, day, hour). Each record contains one day of hourly or 3-hourly values.

CONTENTS: The major parameters that make up this file are; ceiling height (ft.), horizontal visibility (statute miles),

weather (type), wind direction (36 points - 16 points previous to January 1965), wind speed (knots), dry bulb, wet bulb, and dew point temperatures (Deg. F), relative humidity (%), sea level pressure (MB), station pressure (in. Hg), total sky cover and total opaque sky cover (10ths).

ABSTRACT:

This file contains hourly, or 3-hourly, surface weather observation data that are measured primarily by National Weather Service, Federal Aviation Administration, and U.S. Military operated stations and recorded on MF1-10 forms. Hourly data were digitized from the beginning of record through December 1964 and from August 1981 to the present. For the intervening years, January 1965 through July 1981, the stations 3-hourly data were routinely digitized. Most stations though, have some period of record (primarily January 1972 through June 1981), during those intervening years, where the data were digitized hourly for special projects.

This file format was a conversion from a previous digital file, from the beginning of record through December 1983, and included gross data checks during that process. No edited values were derived but data that could not be decoded were flagged. Beginning with the data for January 1984, the surface weather observations were processed through a revised system. Relying heavily on new computer editing procedures, data are subjected to internal consistency checks, compared against climatological limits, checked serially, and evaluated against surrounding stations. Quality control "flags" are appended to each element to show how they fared during the edit procedures and to indicate what, if any, action was taken. The files then, consist of observed values and, as necessary, an edited value.

Related files are TD-6104, TD-9685, TD-9999, and Record of Surface Weather Observations forms.

This file is available for purchase from the NCDC.



FILE TAG: FA00771.

FILE NAME: SUMMARY 6-HOURLY OBSERVATIONS (TD-3290).

TIME PERIOD: January 1, 1984 through the present (updated monthly).

GEOGRAPHIC COVERAGE: United States, U.S. Caribbean, U.S. Pacific Islands, and Puerto Rico.

FILE SIZE: 2 magnetic tapes; 9-track, odd parity, ASCII mode, labeled. Copies of these data are available on magnetic tape and other media. See microfiche inventory TD-3290 for stations in this file.

FORMAT: ANSI variable length records with no more than 12,000 characters per block. NCDC can output on magnetic tape;

1. ASCII mode, variable length records, labeled or unlabeled,

THESE OPTIONS ARE AVAILABLE AT ADDITIONAL COST

2. ASCII mode, fixed length records, 42 characters per record, 140 records per block, labeled or unlabeled,
3. EBCDIC mode, variable length records, unlabeled,
4. EBCDIC mode, fixed length records, 42 characters per record, 140 records per block, unlabeled.

FILE STRUCTURE: All stations are filed on one magnetic tape for the calendar year 1984 and one magnetic tape for the current year. The data are sorted on each magnetic tape by record type, station ID (WBAN No.), element type, and time (year, month, day, hour). Each record contains 6-hourly values.

CONTENTS: The major parameters that make up this file are 6-hourly; maximum and minimum temperatures (Deg. F), precipitation (in.), snowfall (in.), and snowdepth (in.).

ABSTRACT: This file contains 6-hourly summary data that are measured primarily by National Weather Service operated stations and recorded on MF1-10B forms. In 1984, there were approximately 284 stations processed for inclusion in this file.

A maximum of six data entries are possible during a 24-hour local standard time (LST) period. These data times are recorded in LST but they coincide with 6-hourly times of 0000, 0600, 1200, and 1800 GMT. The first and second times can be the same. The first recording period would be from midnight to a given hour, where the second occurrence would be the true 6-hourly

time. There are no known data problems in this file. Related files are TD-3210 and Record of Surface Weather Observations MF1-10 forms.

This file is available for purchase from the NCDC.

FILE TAG: FA00772.

FILE NAME: WEATHER DURATION (TD-3292).

TIME PERIOD: January 1, 1984 through the present (updated monthly).

GEOGRAPHIC COVERAGE: United States, U. S. Pacific Islands, U. S. Virgin Islands, and Puerto Rico.

FILE SIZE: 2 magnetic tapes; 9-track, odd parity, 6250bpi, ASCII mode, labeled. Copies of these data are available on magnetic tape and other media. See microfiche inventory TD-3292 for stations in this file.

FORMAT: ANSI variable length records with no more than 12,000 characters per block. NCDC can output on magnetic tape;

1. ASCII mode, variable length records, labeled or unlabeled,

THESE OPTIONS ARE AVAILABLE AT ADDITIONAL COST

2. ASCII mode, fixed length records, 42 characters per record, 140 records per block, labeled or unlabeled,
3. EBCDIC mode, variable length records, unlabeled,
4. EBCDIC mode, fixed length records, 42 characters per record, 140 records per block, unlabeled.

FILE STRUCTURE: All stations are filed on one magnetic tape for the calendar year 1984 and one magnetic tape for the current year. The data are sorted on each magnetic tape by record type, station ID (WBAN Station No.), element type, year, month, day. Each record contains a station's data for a specific meteorological element over a specific time interval.

CONTENTS: The major parameters that make up this file are time of beginning and time of ending of various weather types. The weather types included are; 1) thunderstorms, tornado, squall, 2) rain, rain showers, freezing rain, 3) rain squalls, drizzle, freezing drizzle, 4) snow, snow pellets, ice crystals, 5) snow showers, snow squalls, snow grains, 6) sleet, sleet showers, hail, 7) fog, blowing dust, blowing sand, 8) smoke, haze, smoke and haze, dust, blowing snow, blowing spray, and 9) ice pellets.

ABSTRACT: This file contains weather duration data that are taken primarily by National Weather Service operated stations and recorded on MF1-10B forms. In 1984 there were approximately 284 active stations processed for inclusion in this file.

Quality control and measurement "flags" are appended to each element in this file to show how it fared during edit procedures and to indicate if any action was taken. The file consists of observed values and if necessary edited values. Beginning and ending time of weather occurrences represent both the beginning of a weather occurrence and the ending of a weather occurrence. Weather occurrences can occur over 2 consecutive days and FLAG-1 must be checked to determine how the time values will appear. There are no known data problems. A related file is Record of Surface Weather Observations MF1-10B forms.

This file is available for purchase from the NCDC.

FILE TAG: FA00271.

FILE NAME: ROCKETSONDE OBSERVATIONS (TD-5850).

TIME PERIOD: January 1957 through the present (updated annually).

GEOGRAPHIC COVERAGE: Selected WMO Global locations.

FILE SIZE: 43 magnetic tapes; 9-track, odd parity, 800 or 1600 bpi, EBCDIC mode, unlabeled, or ASCII mode, labeled. Copies of these data, or copies of data for selected WMO stations, are available on magnetic tape (EBCDIC or ASCII mode) and other media.

FORMAT: The basic observational data are 80 characters per record, 10 records per block from 1957 through 1978 and 80 characters per record, 20 records per block subsequently. The one to 15 year rocketsonde summaries - retention file is 187 characters per record, 10 records per block.

FILE STRUCTURE: The data in this file are sorted on each reel of the following magnetic tapes by WMO station number:

1. 6 magnetic tapes of the U.S. Air Force version of High Altitude Meteorological Data (rocketsonde) 1957-1971,
2. 6 magnetic tapes of various sorted rocketsonde observation data 1960-1972,
3. 15 magnetic tapes of yearly rocketsonde observations 1969-1983,
4. 1 magnetic tape of summarized rocketsonde observations 1959-1968,
5. 15 magnetic tapes of one to 15 years of rocketsonde summaries - retention data 1969-1983.

CONTENTS: The basic observational data set contains the observation time in hours and minutes (GMT) and details of methods used, i.e., the time difference between the rocketsonde and rawinsonde, the types of wind and thermodynamic sensors used, any special sensors, the types of wind and thermodynamic correction methods, the boundary altitudes of questionable data, the rawinsonde instrument used, the release point of the rawinsonde from the rocket launch point, and the altitude (geometric decameters), pressure (mb), and temperature (Deg. C) of the base data used. The rocketsonde parameters include the time of observation (GMT), polar wind direction (whole degrees with respect to North) and speed (whole meters per second), North-South and

East-West wind component (magnitude in whole meters per second), fall velocity (whole meters per second), temperature (Deg. C), and computed values of pressure (mb), density (grams per cubic meter-signed exponent), and speed of sound (whole meters per second). The rocketsonde summaries - retention data file contains summaries and summaries squared totals of North-South and East-West wind components, pressure, density, and speed of sound.

**ABSTRACT:**

Rocketry, as a means of gathering information from the atmosphere, appealed to scientists for many years but it was not until the late 1950's that advanced technology allowed a modest rocket sounding program. Prior to 1969, the World Data Center-A for Meteorology acted as the collection agency and was responsible for editing and publishing the soundings. The pre-1969 observations were converted from magnetic tapes retained by the U.S. Air Force Air Weather Service. Beginning with the 1969 observations, responsibility for preparing observations was transferred to the National Climatic Data Center.

This rocketsonde data file is comprised of a network of approximately 42 stations located globally. Data for agency networks are forwarded to respective agency collection points where high speed computers are used to uniformly reduce and tape the observations. Although extensive machine and personnel quality controls were and are still applied, experience has shown that erroneous values still contaminate this file to some extent. As the state of the art has progressed, changes in observing and recording methods have necessitated many program modifications. Poor and improper documentation of measurement units is also a constant problem.

If an element was not reported it is blank on the magnetic tape. If an element was reported but was excluded from the tape file during quality control processing, the entire field will contain 9's. If one or more layers were missing, an interpolated altitude was inserted between two valid boundary layers with the word missing placed in tape positions 21-27. It is recommended that the user of these tapes include a sufficient number of program steps to assure exclusion of gross data errors. There are no known related files.

This file is available for purchase from the NCDC.

FILE TAG: FA00XXX (see below).

FILE NAME: (FA00775) NMC GLOBAL GTS UPPER AIR (TD-6103),  
(FA00778) NMC GLOBAL GTS AIRCRAFT (TD-6106),  
(FA00779) NMC SATELLITE WINDS (TD-6107),  
(FA00780) NMC BOGUS UPPER AIR (TD-6108).

TIME PERIOD: January 1, 1973 through the present (updated monthly).

GEOGRAPHIC COVERAGE: Global.

FILE SIZE: TD-6103, 70 magnetic tapes; TD-6106, 23 magnetic tapes;  
TD-6107, 36 magnetic tapes; TD-6108, 19 magnetic tapes.  
All magnetic tapes are 9-track, odd parity, 6250 bpi,  
ASCII mode, labeled. Copies of these magnetic tapes  
(EBCDIC or ASCII mode) are available for the cost of  
reproduction.

FORMAT: Variable length records contained in fixed length blocks.  
The block size is 5110 characters for data prior to  
September 16, 1976 and 6432 characters thereafter.

FILE STRUCTURE: Prior to September 16, 1976, each file had a variable  
number of months data on each magnetic tape.  
Subsequently, TD-6103 has 2 months of data on each  
magnetic tape, TD-6106, TD-6107, and TD-6108 have 6 months  
of data on each magnetic tape. Data on each magnetic tape  
are sorted sequentially by time. Each report is composed  
of two parts 1) the report identification of fixed length  
(50 characters), and 2) the observational data of variable  
length.

CONTENTS: The major parameters that make up this file are mandatory  
constant pressure data (1000-MB through 1-MB levels),  
various pressure data, and tropopause data. The primary  
difference of each file is the source of the data.  
Heights of pressure levels are in geopotential meters,  
temperatures in tenths of degrees C, wind direction in  
degrees, and wind speed in knots.

ABSTRACT: The National Meteorological Center (NMC) Global  
Telecommunication System (GTS) data is a collection of  
those observations used to initialize the NMC global  
forecast model. NMC places these data on disc at each  
main synoptic hour. These data are then placed on  
magnetic tape every seven days and sent to the NCDC.  
These NMC magnetic tapes are held in temporary files until  
the end of each month at which time these data are split  
into separate files by data type. The files from January  
1973 through December 1984 were converted from previous  
digital files.

Global GTS data are subject to various degrees of  
automated quality control by the NMC. NCDC accepts these

data as correct during the reformatting procedure. Therefore, the user must be prepared to perform his own quality checks. Documentation is the NMC Office Note No. 29.

These files are available for purchase from the NCDC.



FILE TAG: FA00XXX (see below).

FILE NAME: (FA00776) NMC GLOBAL GTS SURFACE LAND (TD-6104),  
(FA00777) NMC GLOBAL GTS SURFACE MARINE (TD-6105).

TIME PERIOD: GTS SURFACE LAND - January 1, 1973 to the present;  
GTS SURFACE MARINE - February 11, 1975 to the present  
(updated monthly).

GEOGRAPHIC COVERAGE: Global.

FILE SIZE: TD-6104, 234 magnetic tapes; TD-6105, 36 magnetic tapes.  
All magnetic tapes are 9-track, odd parity, 6250 bpi,  
ASCII mode, labeled. Copies of these magnetic tapes  
(EBCDIC or ASCII mode) are available for the cost of  
reproduction.

FORMAT: Variable length records contained in fixed length  
blocks. The block size is 5,110 characters for data  
prior to September 16, 1976 and 6,432 characters  
thereafter.

FILE STRUCTURE: Prior to September 16, 1976, each file had a variable  
number of months data on each magnetic tape.  
Subsequently; TD-6104 has one months data on each  
magnetic tape and TD-6105 has three months data on each  
magnetic tape. In addition, beginning with January 1,  
1978, TD-6104 has intermediate hours (as opposed to 3 or  
6-hourly synoptic) data stored on one magnetic tape a  
month. Data on each magnetic tape are sorted  
sequentially by time. Each report is composed of two  
parts 1) the report identification of fixed length (50  
characters), and 2) the observational data of variable  
length.

CONTENTS: The major parameters that make up this file are; sea  
level and station pressure (MB to 10ths), wind direction  
(degrees), wind speed (knots), temperature, dew point  
temperature depression, previous 24-hour maximum and  
minimum temperatures (Deg. C to 10ths), weather (type,  
coded), total sky cover (oktas), and past 6 and 24 hour  
precipitation totals (in. to hundredths). In addition,  
surface marine data include sea surface temperature  
(Deg. C to 10ths), sea and swell heights (half meters),  
and periods (seconds).

ABSTRACT: The National Meteorological Center (NMC) Global  
Telecommunications System (GTS) data is a collection of  
those observations used to initialize the NMC global  
forecast model. NMC places these data on disc at each  
main synoptic hour. These data are then placed on  
magnetic tape every five days and sent to the NCDC.  
These NMC magnetic tapes are held in temporary files  
until the end of each month at which time these data are  
split into separate files by data type. The files from

January 1973 through December 1984 were converted from previous digital files.

Global GTS data are subject to various degrees of automated quality control by the NMC. The NCDC accepts these data as correct during the reformatting procedure. Therefore, the user must be prepared to perform his own quality checks. Documentation is the NMC Office Notes No. 29 and 124.

These files are available for purchase from the NCDC.

FILE TAG: FA00831.

FILE NAME: NCDC U.S. UPPER AIR (TD-6201),  
ALIAS U.S. RAWINSONDE OBSERVATIONS.

TIME PERIOD: January 1, 1946 through the present (updated monthly).

GEOGRAPHIC COVERAGE: United States stations (National Weather Service, U.S. Navy, and U.S. Air Force) and South American cooperative stations.

FILE SIZE: 54 magnetic tapes; 9-track, odd parity, 6250 bpi, ASCII mode, labeled. Copies of these data for selected stations are available on magnetic tape and other media.

FORMAT: ANSI variable length records with a maximum of 7,236 characters and no more than 12,000 characters per block. NCDC can output on magnetic tape;

1. ASCII mode, variable length records, labeled or unlabeled,

THESE OPTIONS ARE AVAILABLE AT ADDITIONAL COST

2. ASCII mode, fixed length records, 2,876 characters per record, 2 records per block, labeled or unlabeled,
3. EBCDIC mode, variable length records, unlabeled,
4. EBCDIC mode, fixed length records, 2,876 characters per record, 2 records per block, unlabeled.

FILE STRUCTURE: Data in this file are sorted on each magnetic tape by station in chronological order. Each logical record contains one station's rawinsonde observation (normally 2 each day). The record consists of a control word, an identification portion, and a data portion. The control word is used by the computer operating system for record length determination. Data for the current year are filed on monthly magnetic tapes and then merged on annual files. The annual files are merged into the period of record files every five years.

CONTENTS: The major parameters that make up this file include observation time (year, month, day, hour) in GMT, number of levels, level quality indicator, elapsed time since release (beginning with January 1, 1981), pressure of level (kilopascals and hundredths), geopotential height of level (whole meters), temperature of level (Deg. C and 10ths), relative humidity of level (whole %), wind direction of level (whole degrees), and wind speed of level (meters per sec.). The pressure levels included fall into three categories;

1. Mandatory levels -- levels required by the WMO for transmission in parts A and C of a coded RAWIND report,

2. Standard levels -- levels used for internal processing by the NCDC, but not generally reported in a coded message,

3. Significant levels -- levels required to adequately describe a sounding, as transmitted in parts B and D of a coded message.

**ABSTRACT:**

Data in this file are produced from original rawinsonde observation forms and digital output of Automatic Raob stations. From the beginning of record through 1984, this file was converted from previous digital files. These data are currently processed through a combined computer edit and manual edit. The processing system relies primarily on computer editing procedures. Data are subjected to internal consistency checks, and suspect data are returned to a verifier for manual correction.

The data portion of a record contains the upper air meteorological values and the quality control "flag" fields for each level. When corrections are made to a level, that level will appear in the record twice. The first occurrence of the level will be the original observed values, with a quality indicator of "2" or "4." The corrected data will appear in the second occurrence of the level, with a quality indicator of "6." The data portion repeats for each level in the observation with a maximum of 200 levels.

Related files include TD-6202, TD-6203, Upper Air Observations, and Summary of Constant Pressure forms.

This file is available for purchase from the NCDC.

FILE TAG: FA00XXX (see below).

FILE NAME: (FA00832) NCDC GTS UPPER AIR (TD-6202),  
(FA00833) NCDC GTS AFGWC UPPER AIR (TD-6203).

TIME PERIOD: TD-6202 September 1, 1963 through December 31, 1970;  
TD-6203 July 1, 1971 through December 31, 1978.

GEOGRAPHIC COVERAGE: Global.

FILE SIZE: TD-6202, 15 magnetic tapes and TD-6203, 35 magnetic tapes. All magnetic tapes are 9-track, odd parity, 6250 bpi, ASCII mode, labeled. Copies of these data, or copies of data for selected stations, are available on magnetic tape and other computer media.

FORMAT: ANSI variable length records with maximum of 7,236 characters and no more than 12,000 characters per block. NCDC can output on magnetic tape;

1. ASCII mode, variable length records, labeled or unlabeled,

THESE OPTIONS ARE AVAILABLE AT ADDITIONAL COST

2. ASCII mode, fixed length records, 2,876 characters per record, 2 records per block, labeled or unlabeled,
3. EBCDIC mode, variable length records, unlabeled,
4. EBCDIC mode, fixed length records, 2,876 characters per record, 2 records per block, unlabeled.

FILE STRUCTURE: Data in TD-6202 are sorted by WMO station number - data in TD-6203 are sorted by WMO station number within yearly files. Each logical record contains one station's rawinsonde observation (normally 2 per day). The record consists of a control word, an identification portion, and a data portion. The control word is used by the computer operating system for record length determination.

CONTENTS: The major parameters that make up this file include observation time (year, month, day, hour) in GMT, number of levels, level quality indicator, pressure of level (kilopascals and hundredths), geopotential height of level (whole meters), temperature of level (Deg. C and 10ths), relative humidity of level (whole %), wind direction of level (whole degrees), and wind speed (meters per sec.). The pressure levels included fall into two categories;

1. Mandatory levels -- levels required by the WMO for transmission in parts A and C of a coded RAWIND report,

2. Significant levels -- levels required to adequately describe a sounding, as transmitted in parts B and D of a coded message.

**ABSTRACT:**

Data in TD-6202 were collected from the National Meteorological Center (NMC) digital files - data in TD-6203 were collected primarily from the NMC digital files, with missing data filled from the U.S. Air Force Global Weather Center digital files. Both of these files were converted from previous NCDC files. The actual amount of observational data in these files will vary from station to station. Southern Hemisphere stations are usually not available until July 1966.

Global GTS upper air observations are subject to various degrees of automated quality control by the receiving agency. NCDC accepts these data as correct during reformatting (binary to ASCII) procedures. Therefore, the user must be prepared to perform his own quality checks on these data.

This file is available for purchase from the NCDC.

FILE TAG: FA00275.

FILE NAME: NMC PEPMERGE GRID AND ANALYSES (TD-9606, 9609).

TIME PERIOD: January 1, 1973 through the present (updated weekly).

GEOGRAPHIC COVERAGE: Global.

FILE SIZE: 554 magnetic tapes; 9-track, odd parity, 1600bpi, 104 binary and 450 EBCDIC mode, unlabeled. Copies of these magnetic tapes are available for the cost of reproduction.

FORMAT: Binary 32 bit.

FILE STRUCTURE: There are two magnetic tapes per month in the TD-9609 file from July 1, 1976 through September 30, 1980. Subsequently, this file is merged with the TD-9606 file. The TD-9606 file consists of two magnetic tapes monthly from January 1, 1973 through January 31, 1980 and weekly magnetic tapes thereafter. Data are on each magnetic tape in order by time and grids.

CONTENTS: Only those parameters collected by RAOB observations are routinely contained in this file. The National Weather Service, National Meteorological Center does not include any derived parameters on the magnetic tapes sent to the NCDC. While inventories of data in this file are not available, the following parameters are usually present;

Abbreviation	Parameter name	Standard unit
-HGT--	Geopotential Height	gpm
-P-ALT	Pressure Altitude	gpm
-TMP--	Atmospheric Temperature	deg K
-R-H--	Relative Humidity	%
-U-GRD	U-Component of Wind	m/sec
-V-GRD	V-Component of Wind	m/sec

ABSTRACT: The National Meteorological Center uses binary packed data set organization when storing gridded data files. Different grid sizes are available (octogonal mercator and polar stereographic) for both the Northern and Southern Hemisphere. This binary format is used for storage of arrays of data, of typically gridded fields. In this format, fullword (32 bit 360/195) floating numbers are scaled and stored as halfword (16 bit) integers. The first 12 fullwords (48 bytes or 384 bits) of this format are the label portion, which serves two purposes: 1) it uniquely identifies the data field so that it can be retrieved from the data set where it is stored, and 2) it contains the count and scaling

information so that the data, which is stored in the remainder of the format, may be unpacked and converted back to a field of floating numbers. Documentation is the National Meteorological Center's Office Note 84 which explains in detail the many possible combinations of grids and their parameters. A related file is TD-9934.

This file is available for purchase from the NCDC.



FILE TAG: FA00241.

FILE NAME: NORTHERN HEMISPHERE EXTRATROPICAL CYCLONE MOVEMENTS (TD-9616).

TIME PERIOD: May 1965 through December 1974.

GEOGRAPHIC COVERAGE: Northern Hemisphere.

FILE SIZE: One magnetic tape; 9-track, odd parity, 1600 bpi, ASCII mode, labeled. Copies of these data are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: 80 characters per record, 10 records per block.

FILE STRUCTURE: Data are sorted on the magnetic tape by record number and time.

CONTENTS: The major parameters that make up this file are 12-hour (GMT) positions (latitude and longitude), 10-degree square number, direction of movement, previous 10-degree square number, center movement (whole degrees) and speed of movement (knots).

ABSTRACT: The data in this file were constructed by digitizing extratropical cyclone movements from the National Meteorological Center 6-hourly Northern Hemisphere cyclone positions, however, the tape format contains the 12-hour positions. The direction of movements and speed were then computed based on the digitized 12-hourly positions. Also computed were the 10-degree squares. Manual quality control was accomplished to insure the quality of the digitizing. There are no known data quality problems.

This file is available for purchase from the NCDC.

FILE TAG: FA00219.

FILE NAME: LIGHTNING STATISTICS DERIVED FROM STORM DATA (TD-9617).

TIME PERIOD: January 1959 through December 1984 (updated annually).

GEOGRAPHIC COVERAGE: United States and Puerto Rico.

FILE SIZE: One magnetic tape; 9-track, odd parity, 1600 bpi, ASCII mode, labeled. Copies of these data are available on magnetic tape (EBCDIC or ASCII mode) or other computer media.

FORMAT: 28 characters per record, 20 records per block.

FILE STRUCTURE: Data are sorted on the magnetic tape chronologically by State.

CONTENTS: The major parameters that make up this file are damage categories, and number of fatalities and injuries due to lightning. The location, or activity, and sex of the fatality or injury are included.

ABSTRACT: The data in this file were extracted from STORM DATA, a related file, by meteorological technicians in the NCDC. The STORM DATA publications contain "extreme" weather events and related damage information as confirmed and selected by the National Weather Service. All entries were machine and manually quality controlled for completeness and accuracy.

This file is available for purchase from the NCDC.

FILE TAG: FA00144.

FILE NAME: SUMMARY OF THE DAY/MONTH OBSERVATIONS (GLOBAL CEAS)  
(TD-9618).

TIME PERIOD: October 1, 1977 to the present (updated monthly).

GEOGRAPHIC COVERAGE: Global.

FILE SIZE: 94 magnetic tapes; 9-track, odd parity, 1600 bpi, ASCII mode, labeled. Copies of these data are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: File 1; Daily summary record, 68 characters per record, 191 records per block,

File 2; monthly summary record, 96 characters per record, 372 records per block,

File 3; 3-hourly snow data record, 35 characters per record, 372 records per block.

FILE STRUCTURE: Each monthly tape contains three files of summarized data for approximately 7000 world-wide WMO stations. The first file is daily summaries, the second file monthly summaries, and the third file 3-hourly snow data summaries. The data within each file are sorted by time and WMO station number.

CONTENTS: The major parameters that make up this file include time (GMT), station location (lat. & long.), station identification (WMO No.), 24 hour maximum and minimum temperatures (Deg. C), 24 hour precipitation (mm), weather (types), monthly mean temperature (Deg. C), monthly extreme precipitation (mm), snowfall and snow depth (mm), and water equivalent of snow or ice (mm).

ABSTRACT: Summarized data were extracted from surface synoptic weather observations exchanged on the Global Telecommunications System (GTS) that are received by the National Meteorological Center. An automated decode of daily maximum and minimum temperatures and accumulated precipitation is performed according to the World Meteorological code manuals. All data are summarized on a Greenwich Mean (GMT) time basis to current operational requirements related to the assessment of crop and energy production. No attempt is made to convert reports to local time. If the maximum or minimum temperatures are not reported, they are estimated from reported air temperatures in the regular synoptic reports when sufficient data exists. Accumulated precipitation or extreme temperatures reported on a particular GMT-date will be stored and summarized for

that date even though they actually occurred on the previous GMT-date.

This file is available for purchase from the NCDC.

FILE TAG: FA00277.

FILE NAME: WORLD WIDE CONSOLIDATED TROPICAL CYCLONES (TD-9636).

TIME PERIOD: January 1871 through December 1982 (updated periodically).

GEOGRAPHIC COVERAGE: North Atlantic, Eastern North Pacific, Western North Pacific, North Indian, Southwest Indian, and Southwest Pacific and Australian Ocean Basins.

FILE SIZE: One magnetic tape; 9-track, odd parity, ASCII mode, unlabeled. Copies of these data, or copies of data for selected ocean basins, are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: 80 characters per record, 50 records per block.

FILE STRUCTURE: Data are sorted on the magnetic tape in order by sequential card number within each ocean basin.

CONTENTS: The major parameters that make up this file for each ocean basin are constructed; sequential number of the storm (within the year), time (day and hour 00-12 GMT), location (latitude, longitude, 5-degree square and 2-1/2 - degree subsquare), highest stage of storm (coded), direction (8 cardinal points) and speed (knots) of movement (during previous 12 hours), type of movement (coded, loop, recurve, etc.), maximum wind speed (knots) and source of data (coded).

ABSTRACT: This World Wide Consolidated Tropical Cyclone data file, which was derived from many data sources, contains storm data for 6 separate ocean basins. The sources used different definitions, analysis techniques, and periods of record. Conflicts occurred in comparing the same storm from two different sources; some duplicate tracks varied only slightly in movement while others varied by several degrees. Judgements were made as to which intensity to code when the intensity varied between data sources. A few duplicate storms will appear in the data because they varied enough between sources so that they could not be detected as one storm. Some storms were never detected or reported during the earlier years. During the earlier years, many of the dates, positions, and intensities were deduced through estimates and compromise among various reports using synoptic and climatological judgement. Because of the disparity among original formats, this file was divided into ocean basins. All data in this file did, however, receive extensive quality control. Related files are TD-9697 and TD-9635.

This file is available for purchase from NCDC.

FILE TAG: FA00179.

FILE NAME: HISTORICAL CLIMATE DATA (TD-9640).

TIME PERIOD: 1931-1980 monthly normals (updated decennially);  
1931-1983 monthly averages (updated annually); and  
1895-1983 monthly drought indices (updated annually).

GEOGRAPHIC COVERAGE: All States, State Climatic Divisions, Regions, and the Nation.

FILE SIZE: One magnetic tape; 9-track, odd parity, 6250 bpi, ASCII mode, labeled. Data can be selected by file or element-type and furnished on magnetic tape and other media.

FORMAT: ANSI variable length records with no more than 12,000 characters per block. NCDC can output on magnetic tape;

1. ASCII mode, variable length records, labeled or unlabeled,

THESE OPTIONS ARE AVAILABLE AT ADDITIONAL COST

2. ASCII mode, fixed length records, labeled or unlabeled, 186 characters per record, 30 records per block,
3. EBCDIC mode, variable length records, unlabeled,
4. EBCDIC mode, fixed length records, unlabeled, 186 characters per record, 30 records per block.

FILE STRUCTURE: This file is archived on one reel of magnetic tape in the NCDC element format. The data are stored with monthly (MLY) data in File 1, and long term mean (LTM) data in File 2. Each file is sorted in ascending order by element-type, station-ID, and year.

CONTENTS: The first file on this tape contains; 1) State, Regional, and the Nation sequential monthly averages of temperature (Deg. F) and precipitation (in.) weighted by area, 2) State, Regional, and the Nation sequential monthly heating-degree and cooling-degree days (base 65 Deg. F) weighted by population, 3) State Climatic Division sequential unweighted monthly averages of temperature (Deg. F), precipitation (in.), and heating-degree and cooling-degree days (base 65 Deg. F), and 4) State Climatic Division sequential monthly Palmer Drought Severity Index, monthly Palmer Hydrological Drought Index, and monthly Palmer Z Index. See Historical Climatological Series (HCS) 3-6 through 3-9 for detailed descriptions of these drought indices. The second file contains; 1) means and standard deviations of temperature (Deg. F), and precipitation (in.) for

States, Regions, and the Nation weighted by area, 2) means and standard deviations of heating-degree and cooling-degree days (base 65 Deg. F) for States, Regions, and the Nation weighted by population, 3) normals and standard deviations of temperature (Deg. F) precipitation (in.), and heating-degree and cooling-degree days (base 65 Deg. F) for State Climatic Divisions for the periods 1931-1960, 1941-1970, and 1951-1980, and 4) means and standard deviations of temperature (Deg. F), precipitation (in.), and heating-degree and cooling-degree days (base 65 Deg. F) for State Climatic Divisions for the period 1931-1980.

**ABSTRACT:**

The primary sources used to construct this file were TD-3220 Summary of the Month COOP Element file and TD-9658 Palmer Drought file. The Palmer model was calibrated over the period 1931-1983, and its input consisted of monthly mean temperatures and total precipitation for each of the 344 state climatic divisions. Prior to 1931, divisional averages of temperature and estimates of total monthly precipitation were obtained by a series of regression equations relating statewide monthly temperature and precipitation to divisional values. Historical Climatology Series 6-1 describes the procedures in detail. Data prior to 1931 should be treated as estimates within each climatic division. Large-scale patterns should be fairly well represented during this time period, but details within a state will be smoothed by the regression estimates.

Related files (publications) are:

1. HCS 3-1, Atlas of Mean Winter Temperature Departures From the Long-Term Mean Over the Contiguous United States 1895-1983,
2. Atlas of Monthly and Seasonal Temperature Departures From the Long-Term Mean (1895-1983) for the Contiguous United States,  
HCS 3-2, Winter (December-February)  
HCS 3-3, Spring (March-May)  
HCS 3-4, Summer (June-August)  
HCS 3-5, Fall (September-November)
3. HCS 3-6, Atlas of Monthly Palmer Hydrological Drought Indices (1895-1930) for the Contiguous United States,
4. HCS 3-7, Atlas of Monthly Palmer Hydrological Drought Indices (1931-1983) for the Contiguous United States,
5. HCS 3-8, Atlas of Monthly Palmer Moisture Anomaly Indices (1895-1930) for the Contiguous United States,

6. HCS 3-9, Atlas of Monthly Palmer Moisture Anomaly Indices (1931-1983) for the Contiguous United States,
7. HCS 3-10, Atlas of Monthly Palmer Drought Severity Indices (1895-1930) for the Contiguous United States,
8. HCS 3-11, Atlas of Monthly Palmer Drought Severity Indices (1931-1983) for the Contiguous United States,
9. HCS 4-1, State, Regional, and National Monthly and Annual Temperatures Weighted by Area.
10. HCS 4-2, State, Regional, and National Monthly and Annual Total Precipitation Weighted by Area,
11. HCS 4-3, Regional and National Monthly, Seasonal and Annual Temperature Weighted by Area,
12. HCS 5-1, State, Regional, and National Monthly and Seasonal Heating Degree Days Weighted by Population,
13. HCS 5-2, State, Regional, and National Monthly and Seasonal Cooling Degree Days Weighted by Population,
14. HCS 5-3, Percent of Normal State, Regional, and National Monthly and Seasonal Heating Degree Days Weighted by Population (1980 Census),
15. HCS 5-4, Percent of Normal State, Regional, and National Monthly and Seasonal Cooling Degree Days Weighted by Population (1980 Census),
16. HCS 6-1, Statewide Average Climatic History,
17. Climatology of the United States No. 85, Divisional Normals and Standard Deviations of Temperature and Precipitation 1931-1980,
18. Climatology of the United States No. 85, Divisional Normals and Standard Deviations of Heating and Cooling Degree Days 1931-1980.

This file is available for purchase from the NCDC.



FILE TAG: FA00011.

FILE NAME: TIME BIASED CORRECTED DIVISIONAL TEMPERATURE-  
PRECIPITATION-DROUGHT INDEX (TD-9640).

TIME PERIOD: January 1931 through December 1985 (updated annually).

GEORGRAPHIC COVERAGE: United States, U.S. Virgin Islands, and Puerto Rico.

FILE SIZE: One magnetic tape; 9-track, odd parity, 6250 bpi, ASCII mode, unlabeled. Copies of these data, or copies of data selected by State and/or file, are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: File 1. Divisional Monthly Temperatures - 68 characters per record, 100 records per block,

File 2. Divisional Monthly Precipitation - 68 characters per record, 100 records per block,

File 3. Divisional Monthly Palmer Drought Severity Index (PDSI) - 94 characters per record, 100 records per block,

File 4. Divisional Monthly Palmer Drought Hydrological Index (PDHI) - 94 characters per record, 100 records per block,

File 5. Divisional Monthly Palmer "Z" Index (ZNDX) - 94 characters per record, 100 records per block.

FILE STRUCTURE: This file consists of five separate files on one magnetic tape. The data are sorted within each file by State code, division number and year followed by the monthly values. State code numbers are included with the documentation.

CONTENTS: The major parameters that make up this file are sequential "time biased corrected" State Climatic Division monthly average temperatures (Deg. F to 10ths), precipitation (Inches to 100ths), and Palmer Drought Indices (PDSI, PDHI, and ZNDX).

ABSTRACT: Since 1931, each monthly average temperature within a climate division has been calculated by giving equal weight to each station reporting both temperature and precipitation within a division. In the U.S., observers at cooperative stations often take one observation per day and the ending time of the climatological day at any station can vary from station to station as well as year-to-year. Differences of the 24-hour period over which each observer reports his maximum and minimum temperature as well as the average temperature  $[(\text{max} + \text{min})/2]$  affects the calculated monthly mean temperature. Karl, et al. (1986) describe the biases that this

introduces. These potential biases were rectified by adjusting for these varying observation times.

The model described by Karl, et al. (1986) was used to adjust the climate division averages such that all stations end their climatological day at midnight, i.e., climatological day coincides with calendar day. The time of observation was determined at each station within a climate division during January of the years 1931, 1941, 1951, 1965, 1975, and 1984 for the states of California, Colorado, Illinois, Indiana, New York, North Carolina, and Washington. The fraction of observers recording at various hours of the day was calculated for these years and interpolated for intervening years (extrapolated for subsequent years). For these seven states the ending time of observation was also grouped into three categories AM, PM, and MD. The AM category included observers who ended their climatological day between 3 AM and 11 AM, the PM category between noon and 9 PM, and the MD category between 10 PM and 2 AM, all local standard time. The fraction of observers in these categories was calculated, and it was assumed that the 7 AM observation time best represented the AM category, the 5 PM observation time, the PM category, and midnight for the MD category. The reason for the simplification was to test if a faster method, requiring significantly less bookkeeping and keypunching, couldn't provide nearly as good results as calculating the fraction of observers at each of the 24 hours of the day.

The time of observation bias model was run by using the latitude and longitude of each of the centroids of the climate divisions. The output from the model was the time of observation bias, with respect to a midnight-to-midnight climatological day, for each of the possible ending hours of the climatological day. Each climate division's monthly average was adjusted by weighting the bias at any given hour by the fraction of stations within the climate division observing at that hour and subtracting the result for the reported monthly mean temperature.

The differences of the biases were small ( $<0.3^{\circ}\text{F}$ ) for those calculated by categorizing the ending time of observation into three categories compared to those obtained from calculating the fraction of stations with observation times at each of the 24 hours of the day. This is attributed to the preponderance of AM observation times falling between 6 AM and 9 AM and PM observation times falling between 4 PM and 7 PM. As a result, by assuming 7 AM observation for all AM stations and 5 PM for all PM stations, a good estimate of the median bias is obtained for all AM or PM observations. Furthermore, nearly all the MD stations observe at midnight.

Based on the small differences between the two methods of estimating the time of observation bias, the simpler categorical procedure was used for all climate divisions. This should effectively eliminate most of the biases (over 2°F in some climate divisions) that had become part of the divisional averages. These biases affect both trends and actual estimates of divisional averages.

Reference Karl, et al. (1986); "A Model to Estimate the Time of Observation Bias Associated with Monthly Mean Maximum, Minimum and Mean Temperatures for the United States." Thomas R. Karl, Claude N. Williams, Jr., and Pamela J. Young, National Climatic Data Center, and Wayne M. Wendland, Illinois State Water Survey. Journal of Climate and Applied Meteorology, January 1986. American Meteorological Society, Boston, Massachusetts.

The Time of Observation Bias model which can be used for the maximum, minimum, and mean monthly temperature at any location in the contiguous United States [Program NCC \*F11SRC (source code) and NCC \*F11REL (relocatable)] is available for purchase from the NCDC.

This file is available for purchase from the NCDC.

FILE TAG: FA00200.

FILE NAME: DAILY NORMALS (TD-9641).

TIME PERIOD: January 1941-December 1970; January 1951-December 1980.

GEOGRAPHIC COVERAGE: Selected stations; United States, U. S. Pacific Islands, U. S. Virgin Islands, and Puerto Rico.

FILE SIZE: 3 magnetic tapes; 9-track, odd parity, two 1600 bpi and one 6250 bpi, ASCII mode, labeled. Copies of these data are available on magnetic tape (EBCDIC or ASCII mode) and other media.

FORMAT:

1. 1941-1970 daily temperature, heating degree day and cooling degree day normals; 1102 characters per record, one record per block.
2. 1951-1980 daily temperature, precipitation, and heating degree day and cooling degree day normals; 1102 characters per record, one record per block.
3. 1951-1980 daily growing degree unit normals; 138 characters per record, 12 records per block.

FILE STRUCTURE: Each of the above files are on one magnetic tape. Data are sorted by State number and station number within the State.

CONTENTS: The major parameters that make up this file include;

1. Daily normals of maximum, minimum, and average temperature (Deg. F), and heating and cooling degree days (base 65 Deg. F) for the 1941-1970 period,
2. Daily normals of maximum, minimum, and average temperature (Deg. F), precipitation (in.), and heating and cooling degree days (base 65 Deg. F) for the 1951-1980 period,
3. Daily normal growing degree units for bases of 40, 45, 50, 55, 57, 60, 65, 70, and truncated bases of 48/86 and 50/86 (Deg. F) for the 1951-1980 period.

ABSTRACT: The primary sources of data used to construct this file are TD-3200 and TD-3210. These data were put through extensive validation and interpolation procedures based upon the departure from the normal in conjunction with those from surrounding stations. As a result, this file was produced from high quality, serially-complete station records of daily maximum and minimum temperatures and precipitation.

The daily values computed for the normal temperature, precipitation, and heating and cooling degree days are not simple means of the observed daily records. They

are interpolated from the much less variable monthly normals by use of the normal spline function as described by Greville ("Spline Functions, Interpolation, and Numerical Quadrature," Mathematical Methods of Digital Computers, Volume 2. John Wiley and Sons, Inc., New York, 1967). The procedure involves construction of a cumulative series of the monthly sums with the sum for each month being assigned to the last of the month. The cumulative series is for an 18 month period (Oct, Nov, Dec, Jan --- Dec, Jan, Feb, Mar) so the interpolation function can adequately fit the end points of the annual series. This process is applied independently to all five elements. No normal values for February 29 are computed; in common practice, normal values for the 28th are used for the 29th in each leap year. These daily normal values were computed for National Weather Service 1st order and 2nd order stations; 325 stations for the 1941-1970 period and 344 stations for the 1951-1980 period.

Daily values computed for the normal growing degree units were computed for ten base temperatures (Deg. F) two of which are truncated bases. These bases correspond to many of the common phenological cycles in the United States. The truncated bases (48/86 and 50/86) represent adjustments of the daily maximum and minimum temperatures, which better describe specific growth patterns. Here minimum temperatures below the lower base are set to the lower bases (48 or 50) and maximum and/or minimum temperatures above the upper base are set to the upper base (86). Digital documentation for this file provides additional information on the equation used to compute growing degree units. These values of growing degree units for each base temperature were then summed to produce the monthly and accumulated monthly totals published in the Climatology of the United States No. 20 (1951-1980) for approximately 2000 selected cooperative stations. Related files are Climatology of the United States No.'s 20, 81, 84, 85 and TD-9640.

This file is available for purchase from the NCDC. A Normals Name Tape (9-track, odd parity, 1600 bpi) for use with this file is also available for purchase from the NCDC.

FILE TAG: FA00369.

FILE NAME: DEGREE DAY NORMALS SELECTED BASES (TD-9641).

TIME PERIOD: January 1941-December 1970; January 1951-December 1980.

GEOGRAPHIC COVERAGE: Selected stations, United States, U.S. Pacific Islands, and Puerto Rico.

FILE SIZE: One magnetic tape; 9-track, odd parity, 1600 bpi, ASCII mode, unlabeled and 55 microfiche. Copies of these data are available on magnetic tape (EBCDIC or ASCII mode) for the period 1951-1980, or on microfiche for the periods 1941-1970 and 1951-1980.

FORMAT: The magnetic tape is 80 characters per record, 26 records per block. There are two microfiche for 1941-1970 and 53 microfiche for 1951-1980.

FILE STRUCTURE: Data are sorted on the magnetic tape by State number and station number within the State. The two microfiche for 1941-1970 are for 325 National Weather Service 1st and 2nd order stations. Each State for the 1951-1980 period is on one microfiche and data are for 3,349 selected National Weather Service and cooperative stations.

CONTENTS: The major parameters that make up this file are; 1) monthly and annual heating degree day normals below base temperatures of 30, 32, 35, 40, 43, 45, 50, 55, 57, 60, 65, and 70 degrees Fahrenheit, and 2) monthly and annual cooling degree day normals above base temperature of 32, 40, 43, 45, 50, 55, 57, 60, 65, 70, 75, and 80 degrees Fahrenheit. The monthly and annual mean temperature normals and standard deviation of monthly mean temperatures which were used to derive the degree day normals, using procedures developed by H.C.S. Thom; are included in the file on magnetic tape only.

ABSTRACT: The primary sources of data used to construct this file are TD-3200 and TD-3220. Degree day values are useful indices of the energy requirements for heating and cooling buildings, as indices of the normal severity seasons, and as indices of crop growing requirements.

Early this century heating engineers developed the concept of heating degree days as a useful index of fuel requirements. They found when the daily mean temperature is lower than 65 degrees Fahrenheit, most buildings require heat to maintain an inside temperature of 70 degrees Fahrenheit. With the increase toward energy conservation brought about by higher fuel costs, base temperatures other than 65 degrees Fahrenheit have been found to more accurately depict energy requirements.

The usual arithmetical procedures were not applied to obtain the heating and cooling degree day normal data in this file because of numerous heterogeneities in the records at most stations due to instrument changes and relocations. The rational conversion formula (reference Monthly Weather Review Vol. 82, No. 1, January 1954 and Vol. 94, No. 7, July 1966) developed by H.C.S. Thom allows the properly adjusted mean temperature normals to be converted to degree day normals with uniform consistency. In some cases, this procedure will yield degree day values that are unexpected. These cases are not statistically significant and occur when the standard deviations are computed from a mixed distribution, such as the transition months.

Additional information concerning the use and availability of heating and cooling degree day information is contained in the NCDC Environmental Information Summary C-14, Heating and Cooling Degree Day Data.

This file is available for purchase from the NCDC. A Normals Name Tape (9-track, odd parity, 1600 bpi) for use with this file is also available for purchase from the NCDC.

FILE TAG: FA00198.

FILE NAME: MONTHLY HEATING AND COOLING DEGREE DAY NORMALS (TD-9641).

TIME PERIOD: January 1941-December 1970; January 1951-December 1980.

GEOGRAPHIC COVERAGE: Selected stations, United States, U. S. Pacific Islands, U. S. Virgin Islands, and Puerto Rico.

FILE SIZE: 2 magnetic tapes; 9-track, odd parity, 1600 bpi, ASCII mode, labeled. Copies of these data are available on magnetic tape (EBCDIC or ASCII mode) and other media.

FORMAT: 1941-1970; 190 characters per record, 10 records per block, 1951-1980; 92 characters per record, 10 records per block.

FILE STRUCTURE: The data for each period of record are filed on one magnetic tape. Data are sorted on each magnetic tape by State number and station number within the State.

CONTENTS: The major parameters that make up this file are monthly and annual heating degree day and cooling degree day normals.

ABSTRACT: The primary sources of data used to construct this file are TD-3200 and TD-3220.

Degree day values are useful indices of the energy requirements for heating and cooling buildings, as indices of the normal severity of seasons, and as indices of crop growing requirements.

Early this century heating engineers developed the concept of heating degree days as a useful index of heating fuel requirements. They found when the daily mean temperature is lower than 65 degrees Fahrenheit, most buildings require heat to maintain an inside temperature of 70 degrees. The NCDC Environmental Information Summary C-14, Heating and Cooling Degree Day Data contains additional information on the use and availability of these data.

The usual arithmetical procedures were not applied to obtain the heating and cooling degree day normal data in this file because of numerous heterogeneities in the records at most stations due to instrument changes and relocations. The rational conversion formula (reference Monthly Weather Review Vol. 82, No. 1, January 1954 and Vol. 94, No. 7, July 1966) developed by H.C.S. Thom allows the properly adjusted mean temperature normals to be converted to degree day normals with uniform consistency. In some cases, this procedure will yield degree day values that are unexpected. These cases are



not statistically significant and occur when the standard deviations are computed from a mixed distribution, such as the transition months.

Related files are Climatology of the United States No.'s 81, 84, and 85, and TD-9640.

This file is available for purchase from the NCDC. A Normals Name Tape (9-track, odd parity, 1600 bpi) for use with this file is also available for purchase from the NCDC.

FILE TAG: FA00195.

FILE NAME: MONTHLY NORMALS FOR TEMPERATURE AND PRECIPITATION (TD-9641).

TIME PERIOD: January 1931-December 1960; January 1941-December 1970; and January 1951-December 1980.

GEOGRAPHIC COVERAGE: Selected stations; United States, U. S. Pacific Islands, U. S. Virgin Islands, and Puerto Rico.

FILE SIZE: 6 magnetic tapes; 9-track, odd parity; two magnetic tapes are 6250 bpi, EBCDIC mode, unlabeled and four magnetic tapes are 1600 bpi, ASCII mode, labeled. Copies of these data are available on magnetic tape (EBCDIC or ASCII mode) and other media.

FORMAT:

1. 1931-1960 monthly temperature and precipitation normals-80 characters per record, 10 records per block,
2. 1941-1970 monthly normals of precipitation-156 characters per record, 10 records per block,
3. 1941-1970 monthly normals of temperature-156 characters per record, 10 records per block,
4. 1951-1980 monthly temperature, precipitation, and heating degree day and cooling degree day normals-92 characters per record, 10 records per block,
5. 1951-1980 sequential monthly precipitation-116 characters per record, 12 records per block,
6. 1951-1980 sequential monthly temperatures-116 characters per record, 12 records per block.

FILE STRUCTURE: Each of the above data files are on one magnetic tape. Data are sorted on each magnetic tape by State number and station number within the State.

CONTENTS: The major parameters that are included in this file are monthly and annual 30-year normals of temperature (Deg. F) and precipitation with standard deviations. Also included are files of sequential monthly average temperatures (Deg. F) and sequential monthly total precipitation (in.) for the 1951-1980 period.

ABSTRACT: The primary source of data used to construct this file are TD-3200 and TD-3220 files.

Normals for National Weather Service Offices and Principal Climatological Offices are computed by simply averaging the values from the 1931-1960, 1941-1970, and 1951-1980 records, if no exposure changes occurred at the station. Since it is not possible to maintain a multi-purpose network of meteorological stations without having some exposure changes, it is first necessary to identify periods of heterogeneity. After the periods have been determined, adjustments are applied to correct the heterogeneities in the record. This is done by

comparing the record at the station for which the normal is desired to the record at a supplementary station with a homogeneous record. The difference method is used to adjust the monthly average maximum and minimum temperatures. The normal is the weighted average of the various partial means of the adjusted record.

Normals for substations (cooperative) are computed somewhat differently. Monthly substation normals are the simple arithmetic averages of the monthly values of temperature for the period. The normals are also only computed for substations active during the entire period 1931-1960, 1941-1970, or 1951-1980. No attempt was made to adjust for minor changes in location of the observing site, or for changes in the time of observation. Normals were not computed for substations which moved a significant distance during any one of the three periods (more than 5 miles horizontally, or 100 feet vertically). Missing values in the data series were estimated up to a maximum of 18 consecutive values. Precipitation normals are the simple arithmetic averages for all stations.

These monthly and annual normals are published in a related file Climatology of the United States No. 81 (by State). The sequential temperature and precipitation data are also available on microfiche for the period 1951-1980 and as paper copies from the archives for the period 1941-1970.

This file is available for purchase from the NCDC. A Normals Name Tape (9-track, odd parity, 1600 bpi) for use with this file is also available for purchase from the NCDC.

FILE TAG: FA00362.

FILE NAME: NCAR WORLD WEATHER RECORDS-SURFACE (TD-9645).

TIME PERIOD: 1741-1983 (updated periodically).

GEOGRAPHIC COVERAGE: Selected Global stations.

FILE SIZE: 2 magnetic tapes; 9-track, odd parity, 6250 bpi, ASCII mode, labeled. Copies of these data, or copies of data selected by WMO station number, are available on magnetic tape (EBCDIC or ASCII mode), other computer media, and microfiche.

FORMAT: 50 characters per record, 100 records per block.

FILE STRUCTURE: There is one magnetic tape for all global locations and a separate tape of Sharon Nicholson's African rainfall data. Data are sorted on each tape by WMO station number and time.

CONTENTS: The major parameters that make up this file are sequential monthly means of; station and sea level pressure (MB), temperature (Deg. C), precipitation (mm), and relative humidity/vapor pressure (%/MB) with departure from normals, sea surface temperature (Deg. C), and sunshine (% of long-term mean).

ABSTRACT: This data file was developed by the National Center for Atmospheric Research (NCAR) and contains climatological data for approximately 3600 stations worldwide. Data for some stations go back as far as 1741. A great amount of data were obtained from the NCDC historical files. However, much of these data prior to 1951 came from John Wolbach of the Harvard College Observatory. Sharon Nicholson, Florida State University, provided African precipitation data to extend the records of over 250 stations. Dennis Shea, NCAR, has been a valuable source for data obtained directly from various countries. The ship reports in this file contain sea temperatures. The spatial and temporal density of reporting stations is highly variable, with the oldest stations in Europe, and most reports from land areas in the Northern Hemisphere. The data quality of this file is considered very good. Related files include Monthly Climatic Data for the World and World Weather Records.

This file is available for purchase from the NCDC.

FILE TAG: FA00279.

FILE NAME: WORLD WIDE AIRFIELD SUMMARIES - PRINT IMAGE (TD-9647).

TIME PERIOD: Variable using periods of data before 1974.

GEOGRAPHIC COVERAGE: Global.

FILE SIZE: 14 magnetic tapes; 9-track, odd parity, 1600 bpi, EBCDIC mode, unlabeled. Copies of these data are available on magnetic tape (EBCDIC or ASCII mode) and other media.

FORMAT: 148 characters per record, 10 records per block.

FILE STRUCTURE: Each record on the magnetic tapes has 16 positions of identification that include country, climatic area, state, and WMO station number. This is followed by the data portion (positions 17-148). The data portion is displayed in print image format. There are no leading zeros and decimal points are on the tape. All data for each of the following areas are on one reel of magnetic tape per area except the United States which is on two:

1. Southeast Asia	8. Central America
2. Middle East	9. United States
3. Far East	10. Africa
4. Canada-Greenland-Iceland	11. Europe
5. Australia	12. USSR and Eastern Europe
6. Antarctic	13. China, North Korea, and Mongolia
7. South America	

CONTENTS: The data presented are monthly and annual summaries of:

1. Absolute maximum and minimum temperatures (Deg. F),
2. Mean daily maximum and minimum temperatures (Deg. F),
3. Mean number of days with maximum temperature equal to or greater than 90 Deg. F,
4. Mean number of days with minimum temperature equal to or less than 32 or 0 Deg. F,
5. Mean dew point temperature (Deg. F),
6. Mean relative humidity (%),
7. Mean pressure altitude (feet),
8. Mean precipitation (in.),
9. Mean snowfall (in.),
10. Mean number of days with precipitation equal to or greater than 0.1 inch,
11. Mean number of days with snowfall equal to or greater than 1.5 inch,
12. Mean number of days with an occurrence of visibility less than 0.5 mile,
13. Mean number of days with thunderstorms,
14. Percent frequency surface wind speed equal to or greater than 17 knots,

15. Percent frequency surface wind speed equal to or greater than 28 knots,
16. Percent frequency ceiling less than 5,000 feet and/or visibility less than 5 miles,
17. Percent frequency ceiling less than 1,500 feet and/or visibility less than 3 miles by 3-hourly increments,
18. Percent frequency ceiling less than 300 feet and/or visibility less than 1 mile by 3-hourly increments,
19. Mean number of days with ceiling equal to or greater than 1,000 feet and visibility equal to or greater than 3 miles,
20. Mean number of days with ceiling equal to or greater than 2,500 feet and visibility equal to or greater than 3 miles,
21. Mean number of days with ceiling equal to or greater than 6,000 feet and visibility equal to or greater than 3 miles,
22. Mean number of days with ceiling equal to or greater than 10,000 feet and visibility equal to or greater than 3 miles,
23. Mean number of days ceiling equal to or greater than 2,000 feet and visibility equal to or greater than 3 miles with surface wind speed less than 10 knots,
24. Mean number of days with surface wind speed equal to or greater than 17 knots and no precipitation,
25. Mean number of days with surface wind speed 4 to 10 knots and temperature 33 to 89 Deg F and no precipitation,
26. Mean number of days with sky cover less than 3/10ths and visibility equal to or greater than 3 miles.

ABSTRACT:

This file is a compilation of climatological data compiled from numerous sources, including foreign publications, and assembled on magnetic tape by the U.S. Air Force, Air Weather Service. It consists of summaries for approximately 4,000 stations and climatic areas in which they are located. This file was used to prepare a related file, the 12 volume publication entitled World-Wide Airfield Summaries. A utility program (number NO3A17) may be required to select and list data from this file.

The program and file are available for purchase from the NCDC.

FILE TAG: FA00280.

FILE NAME: NCAR WORLD MONTHLY WEATHER RECORDS - UPPER AIR (TD-9648).

TIME PERIOD: January 1950 through December 1984 (updated periodically).

GEOGRAPHIC COVERAGE: Selected Global WMO upper air stations.

FILE SIZE: One magnetic tape; 9-track, odd parity, 6250 bpi, ASCII mode, labeled. Copies of these data, or copies of data for selected WMO upper air stations, are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: 280 characters per record, 17 records per block.

FILE STRUCTURE: Data are sorted on the magnetic tape by WMO station number, year and month.

CONTENTS: The major parameters that make up this file are monthly mean values of; height (geopotential meters), temperature (Deg. C), dew point temperature depression (Deg. C), and vector wind (direction in whole degrees and speed in meters per second) for the surface and constant pressure levels of 850-, 700-, 500-, 300-, 200-, 150-, 100-, 50-, and 30- millibars. Vector wind data are not in this file prior to about 1960.

ABSTRACT: The major source of data in this file are monthly reports provided by stations in the WMO network to the NCDC that are published in a related MONTHLY CLIMATIC DATA FOR THE WORLD file. Individual countries prepare their data for NCDC according to WMO agreement. These data are then quality controlled and digitized by the National Center for Atmospheric Research (NCAR).

This file is available for purchase from the NCDC.

FILE TAG: FA00886.

FILE NAME: SHORT DURATION MAXIMUM PRECIPITATION (TD-9649).

TIME PERIOD: January 1, 1973-December 31, 1979 and January 1, 1984 to the present (updated monthly).

GEOGRAPHIC COVERAGE: United States, U.S. Caribbean Islands, U. S. Pacific Islands, U. S. Virgin Islands, and Puerto Rico.

FILE SIZE: One magnetic tape; 9-track, odd parity, 1600 bpi, EBCDIC mode, unlabeled and 2 magnetic tapes; 9-track, odd parity, 1600 bpi, ASCII mode, unlabeled. Copies of these data, or copies of data for selected stations, are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: 184 characters per record, 10 records per block.

FILE STRUCTURE: Historical data for January 1973 through December 1979 are filed on one magnetic tape; data from January 1984 through the latest calendar year are filed on annual magnetic tapes; and data for the current year are filed on monthly magnetic tapes. Data are sorted on each magnetic tape by station ID (WBAN No.).

CONTENTS: The major paramaters that make up this file are 5, 10, 15, 20, 30, 45, 60, 100, 120, 150, and 180 minute precipitation (in. to hundredths) values, greatest 24-hour precipitation (in. to hundredths) and date, greatest 24-hour snowfall (in. to 10ths) and date, greatest 24-hour snowdepth (in.) and date, monthly total snowfall (in. to 10ths), and quality control flags for each of these fields.

ABSTRACT: Historically, the primary source of short duration maximum precipitation has been National Weather Service first order stations who were equipped with instruments that record precipitation for short time periods. Currently, there are approximately 284 National Weather Service stations so equipped and whose data are entered into this file monthly.

A summary of maximum precipitation data for the years prior to 1896 was published in the annual REPORT OF THE CHIEF OF THE WEATHER BUREAU 1895-1896. Excessive precipitation data for the period 1891-1896 were published in the annual REPORT OF THE CHIEF OF THE WEATHER BUREAU 1896-1897. Data for the years 1897 through 1934 were published in the appropriate annual issues of the same publication. For the years 1935 through 1949, these data were published in the appropriate issue of the UNITED STATES METEOROLOGICAL YEARBOOK. The annual issues of CLIMATOLOGICAL DATA NATIONAL SUMMARY presented excessive precipitation data



each year from 1950 through 1972 and maximum precipitation data for each year from 1973 through 1980. Data for 1981 were not published - 1982 and 1983 data were published in monthly issues of LOCAL CLIMATOLOGICAL DATA.

Beginning with the digitizing of data in 1973 and continuing to the present, the maximum amounts of precipitation may be from different storms, and the threshold intensities required for excessive precipitation prior to 1973 are not a consideration. Only a cursory review of the precipitation amounts was accomplished during this time. Starting with January 1984 data, these data are processed on the surface processing system. Extensive validation of dates, times, and amounts of precipitation is routinely completed on this new system. Related files are TD-3240, TD-3260, and TD-9650.

This file is available for purchase from the NCDC.

FILE TAG: FA00887.

FILE NAME: HOURLY PRECIPITATION DATA MAXES (TD-9650).

TIME PERIOD: January 1, 1973-December 31, 1976; January 1, 1978-January 31, 1980; and May 1, 1980-December 31, 1983.

GEOGRAPHIC COVERAGE: United States, U. S. Pacific Islands, U. S. Virgin Islands, and Puerto Rico.

FILE SIZE: 60 magnetic tapes; 9-track, odd parity, 1600 bpi, EBCDIC mode, unlabeled. Copies of these data, or copies of data for selected stations, are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: 178 characters per record, 10 records per block.

FILE STRUCTURE: There are two magnetic tapes of data for the period January 1, 1973 through December 31, 1976; one magnetic tape for 1978; and monthly tapes thereafter. Data are sorted on each magnetic tape by station ID (state-station index no.).

CONTENTS: The major parameters that make up this file are; precipitation amounts (in. to hundredths) in 15, 30, 45, 60, 120, and 180 minute increments; 1, 2, 3, 6, 12, and 24 hour increments; ending times of precipitation; and 15 minute and hourly accumulated precipitation data when available.

ABSTRACT: The primary source of data for this file was National Weather Service operated or managed primary, secondary, or cooperative observer stations equipped with weighing rain gauges. The NCDC digitized these data which were received on charts or punched paper tapes from approximately 2,000 reporting stations. There are no known quality control problems with this file. Related files are TD-3240, TD-3260, and TD-9649.

This file is available for purchase from the NCDC.

FILE TAG: FA00370.

FILE NAME: PALMER DROUGHT (TD-9658).

TIME PERIOD: 1. Monthly drought indices; January 1931-December 1982,  
2. Monthly drought analyses; July 1965-December 1982,  
3. Weekly drought analyses; January 1973 through the present (updated annually).

GEOGRAPHIC COVERAGE: United States (except Alaska and Hawaii), U.S. Virgin Islands, and Puerto Rico.

FILE SIZE: 3 magnetic tapes; 9-track, odd parity, two 1600bpi and one 6250bpi, EBCDIC mode, unlabeled. Copies of these data are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: 1. Monthly drought indices -- 800 characters per record, 10 records per block,  
2. Monthly drought analyses -- 234 characters per record, 10 records per block,  
3. Weekly drought analyses -- 244 characters per record, 20 records per block.

FILE STRUCTURE: These data are filed on one magnetic tape each for the monthly drought indices, and monthly and weekly drought analyses. Data are sorted on each tape by State number, State Climatic Division, year, month, (week for the weekly analyses).

The digital files of the monthly drought indices and monthly drought analyses ended in 1982. Monthly drought indices (Palmer Drought Severity Index, Palmer Hydrological Drought Index, and Palmer Z Index) are now computed and filed in the TD-9640 files. Beginning with January 1983, the monthly drought analyses are work files only, but printouts are stored in the NCDC archives.

CONTENTS: The Palmer monthly drought indices used are:

- 1) Above 4.0 = Extreme moist spell,
- 2) 3.0 to 3.9 = Very moist spell,
- 3) 2.0 to 2.9 = Unusual moist spell,
- 4) 1.0 to 1.9 = Moist spell,
- 5) 0.5 to 0.9 = Incipient moist spell,
- 6) 0.4 to -0.4 = Near normal,
- 7) -0.5 to -0.9 = Incipient drought,
- 8) -1.0 to -1.9 = Mild drought,
- 9) -2.0 to -2.9 = Moderate drought,
- 10) -3.0 to -3.9 = Severe drought,
- 11) Below -4.0 = Extreme drought.

The Palmer monthly drought analyses includes;

LINE I:

- 1) P = Monthly precipitation,
- 2) T = Monthly mean temperature,
- 3) SP = Available moisture in the soil at the start of a month,
- 4) SS = Amount of available moisture in the surface soil at the end of a month,
- 5) SU = Amount of available moisture in the underlying soil at the end of a month,
- 6) PE = Monthly potential evapotranspiration (Thornthwaite),
- 7) PL = Monthly potential moisture loss,
- 8) PR = Potential recharge; at the start of a month this is the number of inches required to bring the soil to field capacity,
- 9) R = Monthly recharge; net gain in the surface and underlying soil,
- 10) L = Monthly moisture loss from the surface and underlying soil,
- 11) ET = Monthly evapotranspiration,
- 12) RO = Monthly runoff,
- 13) ALPHA = Coefficient of evaporation (computed for the 30 year period 1931-1960),
- 14) BETA = Coefficient of moisture charge (computed for the 30 year period 1931-1960),
- 15) GAMMA = Coefficient of runoff (computed for the 30 year period 1931-1960),
- 16) DELTA = Coefficient of moisture depletion (computed for the 30 year period 1931-1960),
- 17) KAPPA = Climatic characteristic (computed for the 30 year period 1931-1960)

LINE II:

- 1) CET = The estimated monthly evapotranspiration,
- 2) CR = The estimated monthly soil moisture recharge,
- 3) CRO = The estimated monthly runoff,
- 4) CL = The estimated monthly soil moisture loss,
- 5) CP = The estimated monthly precipitation,
- 6) CD = The moisture departure for a particular month,
- 7) Z = The moisture anomaly index for a particular month,
- 8) UD = Amount of dryness effective in ending a wet spell,
- 9) UW = Amount of wetness effective in ending a drought,
- 10) V = The accumulated value of UD or UW,
- 11) ZE = Moisture anomaly required to end a "weather spell" in a single month,
- 12) PROB = Percentage probability that a spell has ended,
- 13) XL = Severity index for a wet spell that is being established,

- 14) X2 = Severity index for a drought that is being established,
- 15) X3 = Severity index for any wet spell or any drought that has become definitely established,
- 16) X = The index of drought (or wet spell) severity; temporarily unassigned when  $0 < \text{PROB} < 100$ .

The Palmer weekly drought analyses contains the same analyses as the monthly and a Crop Moisture Index as follows:

- 1) When the weekly index increased or did not change;

Above 3 = Excessively wet, some fields flooded,  
 2 to 3 = Too wet, some standing water,  
 1 to 2 = Prospects above normal, some fields too wet,  
 0 to 1 = Moisture adequate for present needs,  
 0 to -1 = Prospects improved but rain still needed,  
 -1 to -2 = Some improvement, but still too dry,  
 -2 to -3 = Drought eased but still serious,  
 -3 to -4 = Drought continuous, rain urgently needed,  
 Below -4 = Not enough rain, still extremely dry

- 2) When the weekly index decreased:

Above 3 = Some drying, but still excessively wet,  
 2 to 3 = More dry weather needed, work delayed,  
 1 to 2 = Favorable, except still too wet in spots,  
 0 to 1 = Favorable for normal growth and field work,  
 0 to -1 = Topsoil moisture short, germination slow,  
 -1 to -2 = Abnormally dry, prospects deteriorating,  
 -2 to -3 = Too dry, yield prospects reduced,  
 -3 to -4 = Potential yields severely cut by drought,  
 Below -4 = Extremely dry, most crops ruined.

#### ABSTRACT:

The Palmer Drought analysis program creates three separate files;

1. The Palmer Monthly Drought Index contains only the State Climatic Divisional indices for each month. No other parameters are listed,
2. The Palmer Monthly Drought Analyses create a monthly severity index (x). Each month an X1, X2, X3 is computed and as a drought or wet spell is established, the program assigns one of these values as the drought severity index to be used for the month. If a weather pattern has not been established, the index for the month remains unassigned. At the time of an established pattern, the current month and all assigned indexes for the previous months are filled in. This monthly drought analysis program is an update procedure with each month dependent on the previous month. Input data are taken from the Cooperative Station network,

3. The Palmer Weekly Drought Analyses are run from March to October each year. These analyses create a crop moisture index which is used for inclusion in the Weekly Weather and Crop Bulletin. This crop moisture index measures the degree to which moisture requirements for growing crops were met during the previous week. Temperature and precipitation data are used to calculate moisture demand. Actual moisture loss is computed when taking into account the previous soil moisture condition and current rainfall. Initially, input data were received from the National Weather Service representing a best guess as to average conditions for the previous week. This best guess is necessary to meet production deadlines when producing the Weekly Weather and Crop Bulletin. Actual data are completed from cooperative station data by division about 5 weeks after the data month. This processing has been accomplished by the U.S. Department of Agriculture since January 1983. It is these data that are retained in the data archives at the NCDC.

Related files are TD-9640 and the Weekly Weather and Crop Bulletin publication.

This file is available for purchase from the NCDC.

FILE TAG: FA00282.

FILE NAME: GARP ATLANTIC TROPICAL EXPERIMENT (GATE) (TD-9680).

TIME PERIOD: June 17, 1974 through September 23, 1974.

GEOGRAPHIC COVERAGE: Tropical Atlantic Ocean and adjacent land areas.

FILE SIZE: 9,691 magnetic tapes; 9-track, odd parity, 1600bpi, EBCDIC mode, unlabeled. There are numerous reels of microfilm and one loose-leaf catalogue with supplements. Data can be furnished on magnetic tape, microfilm, photographs, or movie loops.

FORMAT: Various.

FILE STRUCTURE: The data sets on magnetic tape, or microfilm, are filed in the World Data Center-A for Meteorology located in the NCDC. Inventories of the data sets are available in a published loose-leaf catalogue with supplements from the NCDC.

CONTENTS: This file includes the following;

1. Information products prepared during the experiment,
  - a. quick look data set,
  - b. unvalidated teleprinter paper tape data set,
2. Digital data available for national processed and validated data,
  - a. general,
  - b. ship, general,
  - c. ship, surface meteorological,
  - d. ship, upper air,
  - e. ship, tethered balloon,
  - f. ship, oceanographic,
  - g. ship, radar (photographic and digital),
  - h. ship, radiation,
  - i. ship, navigation,
  - j. buoy, cyclesonde (C-scale)(D-type),
  - k. buoy, other C-scale (E- or F-type),
  - l. buoy, wave (G- or H-type),
  - m. buoy, U. S. current (K-type),
  - n. buoy, meteorological,
  - o. aircraft, general,
  - p. aircraft, flight level meteorology,
  - q. aircraft, cloud physics and/or particle aerosol samplers.
  - r. aircraft, gust probe,
  - s. aircraft, dropsonde,
  - t. aircraft, other,

3. Digital data available for international processed and validated data,

- a. land station, surface,
- b. ship, general,
- c. ship, surface meteorology,
- d. ship, upper air,
- e. satellite, cloud displacement vectors,

4. Digital data available for national holdings (raw data inventories),

- a. general, U. S. A. GARP Level II data set (NMC global synoptic data set),
- b. land station, surface,
- c. ship, upper air,
- d. ship, radar (digital or photographic),
- e. aircraft, general,
- f. aircraft, other,
- g. satellite, digital or photographic images,
- h. satellite, cloud displacement vectors,
- i. satellite, sea surface temperature (mapped data on analysis products),
- j. satellite, other.

For ease in ordering information from the catalogue, each data set contains listings of the period of record with their corresponding magnetic tape, or microfilm, reel numbers.

**ABSTRACT:**

The GARP ATLANTIC TROPICAL EXPERIMENT (GATE) was the first major international experiment of the Global Atmospheric Research Program (GARP). It was conducted over the tropical Atlantic Ocean and adjacent land areas under the joint auspices of the World Meteorological Organization (WMO) and the International Council of Scientific Unions (ICSU). The field operations extended from June through September, 1974, with headquarters located in Dakar, Senegal. Digital data for GATE are listed under four categories; 1) Information products prepared during the experiments, 2) Nationally processed and validated data, 3) Internationally processed and validated data, and 4) National holdings (raw data inventories).

The catalogue is designed to provide information on GATE data transferred to the World Data Center-A for Meteorology in the United States from the officially designated National Processing Centers. Information on National Holdings that are not part of the World Data Center-A for Meteorology is included. These consist of invalidated data available from various sources, both in the United States and other participating countries. The catalogue was prepared by the World Data Center-A



for Meteorology located in the NCDC and is available to users of data sets in this file.

This file is available for purchase from the NCDC.

FILE TAG: FA00331.

FILE NAME: FIRST GARP GLOBAL EXPERIMENT (FGGE) (TD-9681).

TIME PERIOD: Build-up and testing; January 1, 1978 through November 26, 1978. Global observations; November 27, 1978 through November 30, 1979. Special observing periods; January 5, 1979 through March 5, 1979 and May 1, 1979 through June 30, 1979.

GEOGRAPHIC COVERAGE: Global.

FILE SIZE: Nine data sets; one catalogue with supplements.

FORMAT: Various.

FILE STRUCTURE: The nine data sets on magnetic tape or microfilm are filed in the World Data Center-A for Meteorology located in the NCDC. Inventories of the data sets are available in a looseleaf catalogue with supplements from the NCDC.

CONTENTS: This file includes information on;

1. Level II-a Inventories,
2. Level II-b Data Sets/Level II-b Supplementary Data,
3. Level II-c Data Sets,
4. Level III-a Operational Analyses Data Sets,
5. Level III-b Global Experiment Analyses Data Sets,
6. U. S. Holdings Data Sets,
7. Winter MONEX Data Sets,
8. Summer MONEX Data Sets,
9. WAMEX Data Sets.

For ease in ordering information from the catalogue, each data set contains listings of the area of the globe covered, period of record and the corresponding magnetic tape, or microfilm, reel numbers.

ABSTRACT: The idea of an intensive, prolonged, global atmospheric observing experiment was conceived early in the development of the Global Atmospheric Research Program (GARP). This concept was later formalized by the Joint Organizing Committee (JOC) for GARP when it recommended to the Executive Committee of the World Meteorological Organization (WMO) and to the International Council of Scientific Unions (ICSU) the implementation of a twelve-month global observing experiment to be called the First GARP Global Experiment (FGGE).

The catalogue is designed to provide information on FGGE data transferred to the World Data Center-A for Meteorology from the officially designated FGGE collection and processing centers throughout the world. Included also is information on selected national

archives data that are not part of the World Data Center-A. This catalogue was prepared by the World Data Center-A for Meteorology and is available to users of the data sets in this file.

This file is available for purchase from the NCDC.

FILE TAG: FA00090.

FILE NAME: STORM TRANSFER AND RESPONSE EXPERIMENT (STREX)  
(TD-9683).

TIME PERIOD: November 1, 1980 through December 15, 1980.

GEOGRAPHIC COVERAGE: The atmosphere and ocean were observed in the vicinity of ship station P (50 Deg. N, 145 Deg. W). For purposes of defining the synoptic-scale environment, the region approximately bounded by 30 degrees to 60 degrees North latitude, 180 degrees West longitude to the coast of North America can be considered the large-scale STREX area.

FILE SIZE: Eight data sets, one loose-leaf catalogue.

FORMAT: Various; narrative type inventories.

FILE STRUCTURE: The data sets on magnetic tape or microfilm are filed in the World Data Center-A for Meteorology located in the NCDC. Inventories of the data sets are available in a published loose-leaf catalogue from the NCDC.

CONTENTS: The catalogue provides information on identification codes and their use, and procedures for ordering the following eight data sets filed on magnetic tape or microfilm;

1. Surface Meteorological (land and ship) data,
2. Upper Air (land, ship, dropsonde) data,
3. Aircraft Meteorological (flight level) data,
4. Drifting Buoy (surface, subsurface) data,
5. Oceanographic (temperature, current profiles) data,
6. Analyses and Time Sections,
7. Satellite Photographs,
8. Data held by Principal Investigators not filed in the World Data Center-A for Meteorology.

ABSTRACT: STREX was an international effort shared by the United States and Canada, the lead agencies being the National Oceanic and Atmospheric Administration and the Canadian Atmospheric Environment Service. A wide array of groups and individuals from both governments and academic research organizations participated. This international cooperative experiment was organized as a federation of Principal Investigators responsible for their own scientific plans and analyses of specialized data.

The catalogue is designed to provide information on the availability of STREX data that has been transferred to the NCDC archives and the Canadian Climate Centre by the designated STREX collection and processing centers throughout the United States and Canada. The catalogue also provides information on how to obtain data that is being held by Principal Investigators. The catalogue was prepared by and is available to users of these data sets from the NCDC.

Parts of this file are available for purchase from the NCDC. The other parts are available for purchase from the Canadian Climate Centre or Principal Investigators.

FILE TAG: FA00424.

FILE NAME: THE ALPINE EXPERIMENT (ALPEX) (TD-9684).

TIME PERIOD: Low-Intensity ALPEX Observing Period (AOP); September 1, 1981 through September 30, 1982. High-Intensity (SOP); March 1, 1982 through April 30, 1982.

GEOGRAPHIC COVERAGE: European Alps.

FILE SIZE: Six data sets; one catalogue.

FORMAT: Various.

FILE STRUCTURE: The six data sets on magnetic tape or microfilm are filed in the World Data Center-A for Meteorology located in the NCDC. Inventories of the data sets are available in a loose-leaf catalogue from the NCDC.

CONTENTS: The data sets in this file include;

1. Alpex Quick-Look (A) microfilm, (B) digital,
2. Special Platform (Research Aircraft Data - not mergeable with Level IIB),
3. Level IIB (Dropwindsonde),
4. Level IIIIB (Alpex analyses),
5. Special Satellite,
6. U. S. National Holdings,

For ease in ordering, each data set in the catalogue presents listings of the various periods of record with the corresponding magnetic tape, or microfilm reel number.

ABSTRACT: The last major field experiment of GARP evolved from its Sub-programme on the Air Flow Over and Around Mountains. Called ALPEX, the experiment was established and approved by the International Council of Scientific Unions (ICSU) and the World Meteorological Organization (WMO). As its name indicates, ALPEX took place in the general area of the Alps, and the time chosen for the "primary observing" period was March and April 1982.

The general objective of the Alpine Experiment was to determine the airflow and mass field over and around mountain complexes under various synoptic conditions. The project focused on circulations due to wind forcing, including storm surges in the Adriatic and Western Mediterranean Sea. The area of Europe involved was from 5 degrees West to 30 degrees East longitude and from 38 degrees North to 50 degrees North latitude.

The project was in direct support of the WMO with 20 nations participating. The specific tasks were;

1. To investigate the mechanism of cyclogenesis in the lee of mountains,
2. To study local mountain wind phenomena such as Fohn, Mistral, and Bora,
3. To determine the total drag of a mountain complex (Alps),
4. To measure the vertical flux of horizontal momentum in lee-waves,
5. To observe orographic influences on precipitation, floods, and heat budget.

The catalogue is designed to provide information on ALPEX data transferred to the World Data Center-A for Meteorology in the United States from officially designated ALPEX collection and processing centers. Information on selected national archives data that are not part of the World Data Center-A is included. This catalogue was prepared by the World Data Center-A for Meteorology and is available to users of the data sets in this file.

This file is available for purchase from the NCDC.

FILE TAG: FA00166.

FILE NAME: LAND SURFACE SYNOPTIC (TD-9685).

TIME PERIOD: January 1, 1967 through December 31, 1980.

GEOGRAPHIC COVERAGE: Global.

FILE SIZE: 369 magnetic tapes; 9-track, odd parity, 1600 bpi, EBCDIC mode, unlabeled. Data can be selected by WMO station number and furnished on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: 65 characters per record, 50 records per block.

FILE STRUCTURE: There is an average of 2 reels of magnetic tape per month in this file. The data are sorted on each tape by time and WMO station number.

CONTENTS: The major parameters that make up this file are 3-hourly or 6-hourly synoptic meteorological observations that include time, sky cover (8ths), wind direction (36 points), and speed (knots or meters per second), visibility (coded, kilometers), weather (coded, type), sea level pressure (mb), pressure tendency and change (coded), dry bulb and dew point temperatures (Deg. C or Deg. F), precipitation amount (coded, millimeters), and supplemental codes.

ABSTRACT: In June 1966, the National Climatic Data Center, U.S. Air Force Global Weather Center, and U.S. Navy Fleet Numerical Weather Center agreed to create and maintain a synoptic data file at the NCDC. Original observations from the U.S. Air Force DATSAV file and the National Meteorological Center (National Weather Service) Global Telecommunication System surface synoptic files are reformatted and combined to form this file.

Automated quality control was accomplished by the respective organizations and the NCDC accepted these data on magnetic tape as correct during reformatting procedures. The NCDC also cannot guarantee the number of observations available for a particular WMO station on any given day.

Subsequent data can be retrieved from the U.S. Air Force DATSAV (TD-9999) and put into the TD-9685 format on demand. Another related file is TD-6104.

This file is available for purchase from the NCDC.



FILE TAG: FA00161.

FILE NAME: MIXING HEIGHT STUDIES (TD-9689).

TIME PERIOD: January 1, 1960 through December 31, 1964 and various later years.

GEOGRAPHIC COVERAGE: Selected upper air stations in the United States.

FILE SIZE: One magnetic tape; 9-track, odd parity, 1600bpi, ASCII mode, labeled and two magnetic tapes; 9-track, odd parity, 6250bpi, ASCII mode labeled. Copies of these data are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: 34 characters per record, 10 records per block.

FILE STRUCTURE: Morning and afternoon mixing heights for the years 1960-1964 were calculated for 62 stations by NCDC for the Environmental Protection Agency. These data are on one reel of 1600bpi magnetic tape. Mixing heights for later years can be computed on demand. A great many of these studies for later years have been generated and are stored on two reels of 6250bpi magnetic tape.

CONTENTS: The major parameters that make up this file are date, morning type indicator, morning (near minimum) mixing depth (meters), morning average wind speed (meters per second to 10ths) through the mixing depth, morning average surface wind speed, afternoon type indicator, afternoon (near maximum) mixing depth, afternoon average wind speed through the mixing depth, and afternoon average surface wind speed.

ABSTRACT: The data utilized in generating this file are hourly surface weather observations (TD-3280), and upper air observations (TD-6201) taken at 0000 GMT and 1200 GMT. Since it takes two data files to generate a mixing height, two different stations (upper air and surface) may be used. Usually this involves a surface station close to the user's area of interest and an appropriate nearby upper air station.

For a mixing height study, it is assumed that a well mixed unsaturated atmosphere will have a lapse rate that is dry adiabatic (9.8 degrees C per kilometer). The morning mixing height is then defined as the height above ground level where the dry adiabatic extension of the morning minimum surface temperature plus 5 degrees C intersects the vertical temperature profile (RAOB) observed for the 1200Z sounding. The plus 5 degrees C is an overstatement of average effects of the urban heat island and therefore includes some surface solar heating. The estimated mixing height applies at the time and place where the surface temperature has

increased 5 degrees C above the minimum. The afternoon mixing height is calculated in the same manner, using the 1200Z RAOB, but this time only the maximum surface temperature is used. In addition, the average wind speed through the mixing depth is calculated. Thus, for each day, a morning and afternoon (maximum) mixing depth is given along with the average wind speed through the mixing depth and precipitation if it occurred (considered to be a cleaning agent of the atmosphere). An inventory of this file is available to users from the NCDC. There are no known related files.

This file is also available for purchase from the NCDC.

FILE TAG: FA00046.

FILE NAME: STORM (TROPICAL CYCLONE) TRACKS (TD-9697).

TIME PERIOD: Eastern Pacific January 1949 through December 1980;  
Northwest Pacific January 1946 through December 1983;  
Northeast Pacific January 1949 through December 1985;  
North Atlantic January 1886 through December 1985  
(updated periodically).

GEOGRAPHIC COVERAGE: As described above.

FILE SIZE: Four magnetic tapes; 9-track, odd parity, 1600bpi, ASCII mode, labeled. Copies of these data are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: 80 characters per record, 10 records per block.

FILE STRUCTURE: Each ocean basin is on a separate magnetic tape for the period of record. The data are sorted on each magnetic tape by time (month, day, year).

CONTENTS: The major parameters that make up this file are; time (month, day, year), number of days the storm lasted, storm identification and position (latitude and longitude in degrees and minutes) wind speed (knots), and central pressure (MB) at 0000, 0600, 1200, and 1800 GMT; and maximum storm status and classification for each (Tropical Storm, Hurricane, or Subtropical Storm).

ABSTRACT: The typical cyclone tracks represented in this file are the "best tracks." Best tracks are constructed by the National Weather Service, National Hurricane Center during post-analysis and all available information including aircraft reconnaissance fixes, satellite imagery, land based radar fixes, ship reports, station reports, and ocean buoy reports, are considered. Duplications and some discrepancies are found by the analyst and subjective interpretations are made and then smoothed to draw the "best tracks." The tracks are then digitized into three record images for each storm; Title record, Data record, and Storm Classification record. A related file is TD-9636.

This file is available for purchase from the NCDC.

FILE TAG: FA00189.

FILE NAME: ATMOSPHERIC ABSORPTION/EMISSION AFGL COMPILATIONS & PROGRAMS (TD-9703).

TIME PERIOD: Not time dependent (updated only when new versions are released).

GEOGRAPHIC COVERAGE: Any area for which atmospheric constituents are available.

FILE SIZE: 5 magnetic tapes; 9-track, odd parity, 1600 bpi ASCII mode, three labeled, two unlabeled. NCDC can copy the reels of magnetic tape (EBCDIC or ASCII mode).

FORMAT: Fixed length records in fixed length blocks. The format is described in the first file on each tape.

FILE STRUCTURE: There is one magnetic tape for each compilation or program as follows. For technical details and additional documentation, the user should contact the responsible agency.

1. HITRAN DATABASE. The AFGL Atmospheric Line Parameters Compilation and the AFGL Trace Gas Compilation are contained in this database. The main line compilation of spectroscopic data is in the spectral region 0 to  $17,900\text{ cm}^{-1}$  for 7 major infrared active gases ( $\text{H}_2\text{O}$ ,  $\text{CO}$ ,  $\text{O}_3$ ,  $\text{N}_2\text{O}$ ,  $\text{CO}_2$ ,  $\text{CH}_2$ ,  $\text{O}_2$ , and their isotopic variants). The trace gas compilation is for 21 other active gases ( $\text{NO}$ ,  $\text{SO}_2$ ,  $\text{NO}_2$ ,  $\text{NH}_3$ ,  $\text{HNO}_3$ ,  $\text{OH}$ ,  $\text{HF}$ ,  $\text{HCl}$ ,  $\text{HBr}$ ,  $\text{HI}$ ,  $\text{ClO}$ ,  $\text{OCS}$ ,  $\text{HOCl}$ ,  $\text{N}_2$ ,  $\text{HCN}$ ,  $\text{CH}_3$ ,  $\text{Cl}$ ,  $\text{H}_2\text{O}_2$ ,  $\text{C}_2\text{H}_2$ ,  $\text{C}_2\text{H}_6$ , and  $\text{PH}_3$ ) from 0 to  $10,000\text{ cm}^{-1}$ . There are four fixed length files: the first is 80 characters per record with 758 records; the second is 5100 characters per record with 6711 records; the third is 80 characters per record with 56 records; and the last file is 5100 characters per record with 56 records; and the last file is 5100 characters per record with 218 records. Requests for details about the contents or user instructions can be forwarded to the;

Responsible agency: Air Force Geophysics Lab  
Laurence S. Rothman  
Infrared Physics Branch  
Optical Physics Division  
Hanscom AFB  
Bedford, MA 01731  
Telephone: 617-377-2336

2. AFGL LOWTRAN 6. A Fortran program for predicting atmospheric transmittance and the thermal radiation emitted by the atmosphere and earth from 350 to  $40,000\text{ cm}^{-1}$  at a spectral resolution of  $20\text{ cm}^{-1}$ . The

program is based on the LOWTRAN 5 (1980) computer code. Solar/lunar scattered radiation has been added to the code, as well as new spherical refractive geometry subroutines and an improved water vapor continuum model. Other modifications include a wind-dependent maritime aerosol model, a vertical structure aerosol model, a cirrus cloud model, and a rain model. The computer code contains representative (geographical and seasonal) atmospheric models and representative aerosol models with an option to replace them with user-derived or measured values. The program can be run in one of three modes, namely, to compute only atmospheric transmittance, to compute atmospheric transmittance and radiance, or to compute atmospheric transmittance, atmospheric radiance, and scattered solar/lunar background radiance for a given slant path geometry. NCDC has limited documentation.  
Responsible agency: Air Force Geophysics Lab  
Frank X. Kneizys (OPI)  
Hanscom AFB  
Bedford, MA 01731  
(617) 377-3654

3. LOWTRAN 5 modified. A Fortran program that is a modification of the AFGL LOWTRAN 5. The major change is an increase in spectral resolution to  $5\text{cm}^{-1}$ . NCDC has documentation.  
Responsible agency: Naval Weapons Center  
Dr. Jon Wunderlich  
Optical Signatures Program  
Office  
Code 39403  
China Lake, CA 93555
4. SOLTRAN. A Fortran program that is a modification of the AFGL LOWTRAN 5. The program produces a direct normal terrestrial solar spectrum. NCDC has documentation (a flyer plus the LOWTRAN 5 documentation).

Responsible agency: SERI  
Richard E. Byrd  
1617 Cole Blvd.  
Golden, CO 80401

5. FASCOD2 or Fast Atmospheric Signature Code. A Fortran program (that replaces all previous versions of FASCODE) with a fast, efficient algorithm for line by line calculations of radiance and transmittance. NCDC has limited documentation.  
Responsible agency: Air Force Geophysics Lab  
Shepard A. Clough (OPI)  
Hanscom AFB  
Bedford, MA 01731  
(617) 377-2337

CONTENTS AND ABSTRACT: This data file contains a compilation developed by the U.S. Air Force Geophysics Laboratory (AFGL) for spectroscopic data of several gases occurring naturally in the terrestrial atmosphere. The gases included in this compilation are carbon dioxide, ozone, nitrous oxide, carbon monoxide, water vapor, methane and oxygen. The spectral region covered extends from one micrometer to the far infrared and data are presented on more than 100,000 spectral lines. These line data are sufficient to calculate infrared and visible transmissions through atmospheric paths. The major parameters included in the data file are line center, transition intensity, halfwidth, lowerstate energy, upper vibration level, lower vibration level, upper rotational quantum, lower rotational quantum, isotope code, and molecular identification. There are no known related files.

This file is available for purchase from the NCDC.

FILE TAG: FA00920.

FILE NAME: NASA GLOBAL ATMOSPHERIC SAMPLING PROGRAM (GASP)  
(TD-9704).

TIME PERIOD: March 1975 through December 1983 (new files added periodically).

GEOGRAPHIC COVERAGE: Global.

FILE SIZE: 21 magnetic tapes; 9-track, odd parity, 1600 bpi (3 are 800 bpi), EBCDIC mode, unlabeled; one magnetic tape, 9-track, odd parity, 1600 bpi, ASCII mode, labeled. Copies of these data are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: All tapes are 512 characters per record, 8 records per block except one Australian tape of 128 characters per record, one record per block and a second tape of 80 characters per record, 60 records per block.

FILE STRUCTURE: Data are sorted on each magnetic tape by the Flight Record (FLHT) followed by the data (DATA) records, followed by filler (PADD) records if necessary. However, every block need not begin with a FLHT record (i.e., if there are more than seven DATA records in a flight). If the FLHT record plus the available DATA records for a flight do not fill an integer number of blocks, the unused logical records in the final block are padded with zeros creating PADD records. The first four bytes in each logical record identify the record type FLHT, DATA, or PADD.

CONTENTS: The major parameters that make up this file are beginning and ending times of the flight (GMT), ambient ozone, cabin ozone, water vapor, clouds, carbon monoxide, and filter samples of sulfate, nitrates, chlorides, and flourides. Also included are tropopause pressure fields and other meteorological data from the National Meteorological Center analyses.

ABSTRACT: The GASP program began in 1972 with a feasibility study of the concept of using commercial airliners in routine service to obtain atmospheric data. Since then, this program has progressed from design and acquisition of hardware to collecting global data on a daily basis. Fully automated GASP systems have been operated on a United Airlines B-747, two Pan American World Airways B-747's, a Qantas Airways of Australia B-747, and the NASA CV-990 research aircraft.

The objectives of the NASA Global Atmospheric Sampling Program are to provide baseline data of selected atmospheric constituents in the upper troposphere and

lower stratosphere and to document and analyze these data to 1) prove a better understanding of the dynamics of the atmosphere in the region where commercial aircraft fly, and 2) provide initial value boundary conditions for atmospheric models being used to assess potential adverse effects from aircraft exhaust emissions on the natural atmosphere.

For each GASP flight, data acquisition begins on ascent through the 6 KM altitude flight level, and terminates on descent through 6 KM. A complete GASP sampling cycle is 60 minutes, divided into 12 five minute sampling segments. During alternate segments (at 10 minute intervals), air sample data are recorded for all instruments. During the intervening segments, the system is on one of six different calibration cycles to allow for in-flight checks on instrument operation (if required). Whenever any calibration cycle is not needed for a given instrument, that instrument acquires air sample data during the segment. For normal GASP sampling, a 16 second recording is made at the end of each five minute sampling segment.

The success of the GASP of course depends on the dedicated effort of both government and contractor personnel. Specific questions concerning GASP systems, instrumentation, or data may be addressed to:

1. NASA LEWIS RESEARCH LABORATORY, 2100 Brookpark Road, Cleveland, Ohio 44135. Telephone 216-433-4000.
2. Dr. Graeme I. Pearman, CSIRO, Division of Atmospheric Research, Institute of Physical Sciences, Private No. 1, Mordialloc, Victoria 3195, Australia.

The data in this file are not edited or quality controlled by the NCDC. There are no known related files.

This file is available for purchase from the NCDC.



FILE TAG: FA00162.

FILE NAME: TEST REFERENCE YEAR-TRY (TD-9706).

TIME PERIOD: A year selected from the years 1948 through 1975.

GEOGRAPHIC COVERAGE: 60 selected United States stations.

FILE SIZE: 3 magnetic tapes; 9-track, odd parity, 1600bpi, ASCII mode, labeled. Copies of these data are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: 80 characters per record, 24 records per block.

FILE STRUCTURE: There are 20 stations on each reel of magnetic tape. The data are sorted on each tape by WBAN station number. NCDC can also provide data on magnetic tape in the TRY format for any station with data in the TD-3280 or TD-9999 files that has historical tables of monthly mean temperatures.

CONTENTS: The major parameters that make up this file are hourly; dry bulb, wet bulb, and dew point temperatures (Deg. F), wind direction (whole degrees-note documentation), wind speed (kts) station pressure (In. Hg and hundredths), weather (type-note documentation), and total sky cover (10ths).

ABSTRACT: This file was developed in support of site selected design. The Test Reference Years were selected on the basis of monthly mean temperatures by an American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) approved procedure. The test reference year (TRY) is determined in the following manner:

The extreme months are arranged in order of importance for energy comparisons. Hot Julys and cold Januarys are assumed to be the most important. All months are ranked by alternating between the warm half (May to October) and the cold half (November to April) of the year, with the months closest to late July or late January given priority. The resulting order is:

1) Hottest	July	13) Coolest
2) Coldest	January	14) Mildest
3) Hottest	August	15) Coolest
4) Coldest	February	16) Mildest
5) Hottest	June	17) Coolest
6) Coldest	December	18) Mildest
7) Hottest	September	19) Coolest
8) Coldest	March	20) Mildest
9) Warmest	May	21) Coolest
10) Coolest	November	22) Warmest

11) Warmest	October	23) Coolest
12) Coolest	April	24) Warmest

The first step in the selection process is to mark all 24 of the above extreme months in order. For the remaining years without any marked month, repeat the above process until only one year remains without any marked month. The remaining year is the test reference year.

When the NCDC selects a test reference year for a station other than the original 60 stations, the data output in the TRY format may be hourly or 3-hourly depending on the year selected. All data on the input TD-3280, or TD-9999, file will be reformatted and provided.

The documentation Tape Reference Manual "Test Reference Year" provides a list of the stations on each magnetic tape and the selected test reference year. There are no known related files.

This file is available for purchase from the NCDC.

FILE TAG: FA00432.

FILE NAME: UPPER AIR MONTHLY STATISTICS (TD-9711).  
ALIAS WARMFLUX.

TIME PERIOD: January 1967 through December 1984 (updated monthly).

GEOGRAPHIC COVERAGE: United States, U.S. Pacific Islands, Puerto Rico, and North and South American cooperative stations.

FILE SIZE: 69 magnetic tapes; 9-track, odd parity, 1600bpi, EBCDIC mode, unlabeled. Copies of these data, or copies of data for selected stations, are available on magnetic tape (EBCDIC or ASCII mode), and other computer media.

FORMAT: 183 characters per record, 10 records per block.

FILE STRUCTURE: There are 16 magnetic tapes for the period January 1967 through December 1977, annual tapes for the years 1978 through 1982, and monthly tapes thereafter. In addition, there are monthly tapes for 1981 and 1982. Data are sorted on each magnetic tape by station ID (WBAN No.), year, month, hour.

CONTENTS: The major parameters that make up this file for each standard pressure (MB) level are monthly; sums and sums squared of the x (West/East) and y (South/North) wind components; means of vector wind direction (degrees) and speed (mps and knots), water vapor flux and eddy flux components ( $\text{Gm/cm}^2 \cdot \text{MB}$ . and  $\text{Gm/cm}^2 \cdot \text{MB} \cdot \text{sec}$ ), height (geopotential meters), temperature (Deg. C), relative humidity (%), computed dew point temperature (Deg. C); and maximum monthly wind speed (mps) with direction (degrees) and day of occurrence.

ABSTRACT: This file is a by-product of the routine processing of the NCDC U.S. Upper Air (TD-6201) file. These upper air statistics are computed monthly for each standard pressure level for approximately 117 upper air stations. The 1200 GMT observations for each station are utilized with few exceptions when the 0000 GMT observation is the only one of the day. Up to 37 levels from the surface to 2-millibars are possible for each station.

Missing levels for each station will have ID elements only. Missing data are represented by blank fields. Relative humidity and flux elements contain both statistical and actual values and counts of each are maintained during processing. A statistical value is used when the rawinsonde humidity element "motorboats" due to very low humidity. These values are a set of mean values for use at various temperatures when the electric hygrometer is below its operating range. Negative values in most fields are represented by x over (multi-punches) in either the low or high order

position. See tape format documentation for clarification of negative values for each field.

This file is available for purchase from the NCDC.

FILE TAG: FA00009.

FILE NAME: FREEZE DATA (TD-9712).

TIME PERIOD: January 1, 1931-December 31, 1960 and  
January 1, 1951-December 31, 1980.

GEOGRAPHIC COVERAGE: United States.

FILE SIZE: 3 magnetic tapes; 9-track, odd parity, one 1600 bpi, EBCDIC mode, unlabeled and two 6250 bpi, ASCII mode, labeled. Copies of these data, or copies of data for selected stations, are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: 1931-1960 Freeze Data; 80 characters per record, 25 records per block.

1951-1980 Freeze Dates; 108 characters per record, 30 records per block.

1951-1980 Probability Levels - Freeze Dates and Growing Season Lengths; 58 characters per record, 18 records per block.

FILE STRUCTURE: Each file is stored on one magnetic tape. Data are sorted on each magnetic tape by State number and station number within the State.

CONTENTS: The major parameters that make up the Freeze Data and Freeze Dates files are dates (year, month, day) of the last freeze in spring and the first freeze in fall for threshold temperatures (where the temperature was less than or equal to) 36, 32, 28, 24, 20, and 16 degrees Fahrenheit. The Probability Levels file parameters are based on the Freeze Dates file and include; 1) probability levels of 10, 20, 30, 40, 50, 60, 70, 80, and 90% of the occurrence of freeze within the above threshold temperatures, 2) number of years in which the specified threshold temperature was reached or exceeded, 3) mean (Julian) day number of occurrences associated with the specified threshold temperature, and 4) standard deviation of mean Julian day number of occurrences found in 3.

ABSTRACT: Data from the digital data Summary of the Day file (TD-3200) were used to produce Freeze Data dates. The temperature data in this file were put through extensive validation and interpolation procedures based upon the departure from the normal in conjunction with those from surrounding stations. As a result, the freeze data dates were produced from high quality, serially-complete station records of daily maximum and minimum temperatures.

Yearly station values of the last spring and first fall occurrences of selected low temperatures were chosen for the period 1931 through 1960 using a season definition of July 1 through June 30 while these occurrences of low temperatures for the period 1951 through 1980 were chosen using a season definition of August 1 through July 31. The 1951-1980 season definition is an improvement over the 1931-1960 definition because it coincides more closely with the annual march of temperature in which the warmest time of the year occurs closer to August 1. The change of season definition also produces more realistic dates in the extreme northern and mountainous regions of the United States, where temperatures frequently are at the threshold temperatures near the June 30 date. It is important to note, however, that the change of season definition has no effect on other stations where temperatures do not reach or exceed the preselected temperature during the summer. Data from the 1951-1980 Freeze Dates file were used to produce the 1951-1980 Probability Levels file.

The estimation of freeze probabilities was based upon the work of H. C. S. Thom and R. H. Shaw which was later modified by C. K. Vestal. The selected probabilities were .1 through .9 in increments of .1. A date associated with each of the preselected probability levels was computed for the last spring and first fall freeze seasons. Similarly, the number of days associated with the freeze-free period was computed for each probability level. The probability level represents the risk the user is willing to accept with regard to reaching or exceeding a certain threshold temperature by a specific date or number of days. For example, suppose the .90 probability level for the spring season is computed to be March 1 at the 32 degree threshold. This means that nine times out of ten (or 90%) a temperature as cold or colder than 32 will occur later than March 1 during the spring season. For the fall season, the probability level represents the chance of having a temperature as cold or colder earlier than the computed date. The freeze-free probability level indicates the chance of having a longer freeze-free period than the computed number of days. The 1951-1980 statistics are published in Climatology of the United States No. 20 for approximately 2,000 cooperative stations.

This file is available for purchase from the NCDC.

FILE TAG: FA00404.

FILE NAME: TORNADO DATA (TD-9714).

TIME PERIOD: January 1, 1950 through the present (updated periodically).

GEOGRAPHIC COVERAGE: United States.

FILE SIZE: One magnetic tape; 9-track, odd parity, 1600bpi, ASCII mode, labeled. Copies of these data are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: 80 characters per record, 10 records per block.

FILE STRUCTURE: Each record on this magnetic tape contains 17 characters of identification that include year, sequence of event within the state, state number, month, day, hour of occurrence and accuracy of the time, followed by 63 characters of information on the tornado.

CONTENTS: The major parameters that make up this file are; beginning and ending points of tornadoes (latitude/longitude in degrees and minutes), characteristics of the tornado including the number of states and counties the tornado path crossed, tornado intensity (coded-Fujita scale), total injuries and fatalities, damage class (coded), and source of the report (coded).

ABSTRACT: The primary sources of data that make up this file are; confirmed and selected tornado reports received from State Climatologists and National Weather Service Offices which are published by the NCDC in a related file STORM DATA monthly publication, and digital output of tornado reports received by the National Weather Service, National Severe Storm Forecast Center. There are no known data problems.

This file is available for purchase from the NCDC.

FILE TAG: FA00158.

FILE NAME: SOLMET-HOURLY SOLAR RADIATION PLUS SURFACE  
METEOROLOGICAL OBSERVATIONS (TD-9724).

TIME PERIOD: Primarily July 1952 through December 1976.

GEOGRAPHIC COVERAGE: Selected stations; United States, U. S. Pacific  
Island stations, Puerto Rico, and Guantanamo Bay, Cuba.  
[27 measuring (rehabilitated) and 225 modeled (ERSATZ)].

FILE SIZE: 252 magnetic tapes; 9-track, odd parity, 1600 bpi, ASCII  
mode, labeled. Copies of these data are available on  
magnetic tape (EBCDIC or ASCII mode) and other computer  
media.

FORMAT: 163 characters per record, 48 records per block.

FILE STRUCTURE: Each tape consists of an identification portion followed  
by solar radiation data and then surface meteorological  
data (a metric SI conversion of the airway surface  
observations TD-3280). All data for one station are on  
one reel of magnetic tape. See TD-9636 for January 1977  
through December 1980 and TD-9794 for January 1981 to  
October 1985 for subsequent solar radiation data.

CONTENTS: The major parameters that make up this file are solar  
time, local standard time, extraterrestrial radiation  
(kilojoules per square meter), global radiation on a  
horizontal surface (kilojoules per square meter),  
sunshine (minutes) if recorded, sky conditions,  
visibility (hectometers), weather (type), sea level and  
station pressure (kilopascals), temperature (Deg. C to  
10ths), wind direction (degrees), wind speed (meters per  
second and 10ths), total cloud cover and total opaque  
cloud cover (10ths), and snow cover indicator.

ABSTRACT: SOLMET is a common tape record that was designed to  
provide solar energy users with quality controlled  
hourly solar radiation and collateral meteorological  
data in a single FORTRAN compatible tape. Solar values  
are hourly for the period of record but the  
meteorological parameters may be 3-hourly after December  
1964. Documentation is SOLMET Volume 1 - Users Manual  
(TD-9724) and includes a list of SOLMET locations.  
Related files are TD-9734, TD-9736, TD-9739, and  
TD-9794.

This file is available for purchase from the NCDC.



FILE TAG: FA00153.

FILE NAME: TYPICAL METEOROLOGICAL YEAR (TD-9734).

TIME PERIOD: Twelve months selected from January 1, 1953 through December 31, 1975.

GEOGRAPHIC COVERAGE: Selected stations in the United States.

FILE SIZE: 10 magnetic tapes; 9-track, odd parity, 1600 bpi, ASCII mode, labeled. Copies of data are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: 132 characters per record, 24 records per block.

FILE STRUCTURE: One magnetic tape is available for each of (9) regions of the United States with data for 235 selected stations. Although the 26 rehabilitated (SOLMET TD-9724) stations data are included on the region tapes, they are also grouped on a separate tape. All stations data are sorted on each magnetic tape by WBAN station number.

CONTENTS: The major parameters that make up this file are hourly or 3-hourly; solar time, extraterrestrial radiation (kilojoules per square meter), direct radiation (kilojoules per square meter), global radiation (kilojoules per square meter), ceiling height (decameters), sky condition, visibility (hectometers), weather (type), sea level and station pressure (kilopascals), dry bulb and dew point temperatures (Deg. C to 10ths), cloud amounts (10ths), and total and opaque sky cover (10ths).

ABSTRACT: Solar radiation and surface meteorological data files maintained at the NCDC were used as input to form this file. The modeled (ERSATZ) solar radiation data were developed by the Air Resources Laboratory of the NOAA. The TMY data for the 26 rehabilitated locations were developed by the Sandia Laboratories. The TMY data for all other locations were produced by EG & G Inc. of Los Alamos, NM.

The TMY tapes comprise specific calendar months selected from the entire recorded span for a given station as the most representative, or typical, for that station month. For example, a single January is chosen from the 23 Januarys for which data were recorded from 1953 through 1975. The data for the 26 rehabilitated stations are hourly but all other stations are hourly only if the year/month selected was from January 1953 through December 1964. All other year/month selections from January 1965 through December 1975 are 3-hourly data. The solar radiation for these stations are also synthesized (ERSATZ). Documentation is Typical

Meteorological Year User's Manual TD-9734 and a listing of TMY stations is included. Related files are TD-9724, TD-9736, TD-9739 and TD-9794.

This file is available for purchase from the NCDC.

FILE TAG: FA00288.

FILE NAME: POST 1976 HOURLY SOLAR RADIATION (TD-9736).

TIME PERIOD: January 1, 1977 through December 31, 1980.

GEOGRAPHIC COVERAGE: Selected stations; United States, U.S. Pacific Islands, and Puerto Rico.

FILE SIZE: 7 magnetic tapes; 9-track, odd parity, 1600 bpi, ASCII mode, labeled. Copies of these data, or copies of selected station's data, are available on magnetic tape (EBCDIC or ASCII mode) and other media.

FORMAT: 163 characters per record, 24 records per block.

FILE STRUCTURE: These data are sorted on each magnetic tape by WBAN station number and time (year, month, day, hour). Each record consists of the identification portion followed by the solar radiation data and then the surface meteorological data (a metric SI conversion of the TD-3280).

CONTENTS: The major parameters that make up this file are hourly; extraterrestrial radiation (kilojoules per square meter), edited and observed solar radiation (direct, diffuse, net, tilted surface, and global on a horizontal surface) (kilojoules per square meter), sunshine (minutes), ceiling height (decameters), sky condition, visibility (hectometers), weather (type), sea level pressure and station pressure (kilopascals), temperature and dew point temperature (Deg. C to 10ths), wind direction (degrees) and speed (meters per second), clouds, total and opaque sky cover (10ths), and snow cover indicator. The observations are in local standard time.

ABSTRACT: This file is a tape format designed to provide, in a single Fortran compatible tape, hourly solar radiation data and collateral meteorological data. These data are a by-product of data processing for a related publication MONTHLY SUMMARY, SOLAR RADIATION DATA file. Other related files are TD-9724, TD-9734, TD-9739 and TD-9794.

Users of "pre" 1976 solar radiation data SOLMET (TD-9724) will need to modify their programs to work in a local standard time frame instead of true solar time when combining files. This file contains no overpunches or alpha characters. Missing or unknown data are encoded with 9's.

Documentation is Users Manual Post-1976 Solar Data (TD-9736). The microfiche inventory TD-9736 contains a

listing of stations that are in this file and which  
radiation parameters are available for those stations.

This file is available for purchase from the NCDC.

FILE TAG: FA00290.

FILE NAME: SOLDAY-DAILY SOLAR RADIATION (TD-9739).

TIME PERIOD: Variable for each station; July 1, 1952 through December 31, 1976.

GEOGRAPHIC COVERAGE: 26 selected United States stations.

FILE SIZE: One magnetic tape; 9-track, odd parity, 1600 bpi, EBCDIC mode, unlabeled. Copies of these data, or copies of selected station's data, are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: 100 characters per record, 30 records per block.

FILE STRUCTURE: These data are sorted on the magnetic tape by WBAN station number and time (year, month, day). Each record consists of an identification portion followed by the solar radiation data and then the surface meteorological summary of the day data.

CONTENTS: The major parameters that make up this file are; sunrise/sunset (LST-hour and minutes), extraterrestrial radiation (kilojoules per square meter), global radiation on a horizontal surface (kilojoules per square meter), sunshine (minutes), percent of possible sunshine (%), maximum, minimum, mean temperatures (Deg. C to 10ths), precipitation (millimeters and 10ths), snow (centimeters and 10ths), snow depth (whole centimeters), day with weather (coded), and total sky cover (10ths, average from sunrise to sunset).

ABSTRACT: To satisfy the need for long-term insolation data, the NCDC rehabilitated and reformatted daily solar radiation data by removing all known procedural and instrumental errors and by including all available meteorological elements. Rehabilitated hourly data stations (SOLMET, TD-9724) were not chosen for inclusion in this format. These are 26 different stations. The meteorological data in this file are metric conversions of parameters available in the TD-3210 file. Other related data files are TD-9724, TD-9734, and TD-9794. Documentation is SOLDAY USER'S MANUAL TD-9739 which includes a list of stations in this file showing latitude, longitude, elevation, periods of record, and changes in station location.

This file is available for purchase from the NCDC.

FILE TAG: FA00291.

FILE NAME: ARL BAT MODEL WIND/TEMPERATURE-INPUT (TD-9743).

TIME PERIOD: January 1, 1975 to the present (updated periodically).

GEOGRAPHIC COVERAGE: North American rawinsonde stations - north of 20 degrees north latitude, except Alaska.

FILE SIZE: 20 magnetic tapes; 9-track, odd parity, 6250 bpi, ASCII mode, unlabeled (Input data).

One magnetic tape; 9-track, odd parity, 1600 bpi, ASCII mode, unlabeled (BAT model program).

FORMAT: Forward and backward moving input data tapes - 30 characters per record, 400 records per block. BAT model program tape - 80 characters per record, 39 records per block.

FILE STRUCTURE: There are 20 multifile (one file per month) magnetic tapes - one forward moving and one backward moving for each year. The "Branching Atmospheric Trajectory (BAT) Model" program is on a separate magnetic tape.

CONTENTS: The major parameters that make up this file are: wind direction (degrees), wind speed (meters per second), pressure (MB), and temperature (Kelvin) at various levels through 500-millibars.

ABSTRACT: This Air Resources Laboratory (ARL) data file is composed of input data used in the practical application of pollution studies. ARL uses these data to create an ARL atmospheric transport and dispersion model. This model calculates trajectories of 5 days duration of pollution from any number of origins, starting every 6 hours during a selected period, moving either forward or backward in time.

These data are collected from the U.S. Air Force global upper air observed meteorological data files. ARL then extracts these data in the lower atmosphere. Four observations per day are generally reported for each station (00, 06, 12 and 18 GMT). To run the model, the user will require both the BAT model program and input data magnetic tapes. There are no known data problems in this file.

This file is available for purchase from the NCDC.

FILE TAG: FA00292.

FILE NAME: INPUT DATA FOR SOLAR SYSTEMS (TD-9744).

TIME PERIOD: January 1941 through December 1976.

GEOGRAPHIC COVERAGE: Selected United States stations.

FILE SIZE: One magnetic tape; 9-track, odd parity, 1600 bpi, EBCDIC mode, unlabeled. Copies of these data, or copies of selected station's data, are available on magnetic tape (EBCDIC or ASCII mode) and other media.

FORMAT: 60 characters per record, 14 records per block.

FILE STRUCTURE: These data are sorted on the magnetic tape by WBAN station number.

CONTENTS: The major parameters that make up this file are monthly normals of maximum, minimum, and average temperatures (Deg. F), heating-degree and cooling-degree days (base 65 Deg. F), and total hemispheric mean daily solar radiation (BTU/ft<sup>2</sup>, kJ/m<sup>2</sup>, LANGLEYS). The normals are for the period 1941-1970 and the means are for the period 1952-1976.

ABSTRACT: The sources of data used to create this file are related files CLIMATOGRAPHY OF THE UNITED STATES NO. 81 (1941-1970) and SOLMET TD-9724 (1952-1976). The data in this file are monthly averages only. The solar radiation for 26 stations are averaged actual rehabilitated data. The remaining station's solar radiation data are synthesized (ERSATZ).

The tape format is Fortran compatible, and contains both alphanumeric and numeric fields. The former, consisting of geographic area, station name, latitude and longitude fields, are left justified, with unused trailing characters left blank. The remaining fields are right justified, with leading zeros suppressed, or characters left blank. There are no known data problems.

This file is available for purchase from the NCDC.

FILE TAG: FA00293.

FILE NAME: PILOT CHART-SUMS OF GLOBAL ATLAS MSQ'S (TD-9757).

TIME PERIOD: January 1, 1850 through December 31, 1970.

GEOGRAPHIC COVERAGE: Global.

FILE SIZE: 7 magnetic tapes; 9-track, odd parity, 1600 bpi, ASCII mode, labeled. Copies of these data are available on magnetic tape (EBCDIC or ASCII mode).

FORMAT: 310 characters per record, 10 records per block on the marsden square (MSQ) 5-degree subsquare resolution magnetic tape. 380 characters per record, 10 records per block on the MSQ 1-degree subsquare resolution magnetic tapes.

FILE STRUCTURE: There are 6 magnetic tapes containing data sums for MSQ 1-degree subsquare resolution and one magnetic tape of data sums for MSQ 5-degree subsquare resolution.

CONTENTS: These 1-degree and 5-degree quadrangle summaries give the observation count for eight-point "wind roses," and means and standard deviations for; wind speed (knots), pressure (pressure-1000mb to 10ths), air temperature (Deg. C to 10ths), wet bulb temperature (Deg. C to 10ths), dew point temperature (Deg. C to 10ths), sea surface temperature (Deg. C to 10ths), air-sea temperature difference (Deg. C to 10ths), and wave height (meters). Also included are light (dry bulb temperature equal to or less than -2 deg. C and wind speed equal to or greater than 13 knots) and heavy (dry bulb temperature equal to or less than -9 deg. C and wind speed equal to or greater than 30 knots) superstructure icing potential and frequency of gales (equal to or greater than 34 knots).

ABSTRACT: The primary source of data used to create this file was TD-9760 Marine Atlas Data file. The period of record summarized for each MSQ 1-degree and 5-degree subsquare varied depending on the ocean basin. The mean latitude/longitude location within each specified quadrant was determined by accumulating the sum of each latitude and longitude of those observations reporting both air temperature and wind fields. The number of observations represents only those observations which included wind and temperature.

This file is available for purchase from the NCDC.



FILE TAG: FA00294.

FILE NAME: MARINE ATLAS DATA (TD-9760).

TIME PERIOD: January 1, 1800 through December 31, 1979.

GEOGRAPHIC COVERAGE: Global.

FILE SIZE: 146 magnetic tapes; 9-track, odd parity. 49 are 6250bpi, ASCII mode, unlabeled - 11 are 1600bpi, ASCII mode, unlabeled - 86 are 1600bpi, ASCII mode, labeled. Copies of these, data or copies of data for selected Marsden Squares (MSQ), sub-squares, are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: 140 characters per record, 50 records per block.

FILE STRUCTURE: There are 55 magnetic tapes by ocean basin for the beginning of record through 1969 and 86 magnetic tapes by MSQ from 1970 through 1979. These data are sorted on each magnetic tape by 10-degree MSQ, sub-square. In addition, there is one magnetic tape for each ocean ship vessel N, P, T, V, and X, containing data for the period of record they were operational.

CONTENTS: The major parameters that make up this file are wind direction (coded) and speed (knots), visibility (coded), weather (coded), atmospheric pressure (MB), dry bulb, wet bulb and dew point temperatures (Deg. C), total cloud amount (8ths), and sea and swell heights (1/2 meters) including direction (coded) and period (seconds).

ABSTRACT: The marine data in this file were obtained from ships logs, ship weather reporting forms, published ship weather observations, automatic observing buoys, teletype reports, and from several foreign meteorological services. The data in this file were quality controlled by computer check for internal consistency and manually for extremes. These data were used to produce related file U.S. Navy Marine Climatic Atlases. Subsequent marine data are located in related file TD-1129.

This file is available for purchase from the NCDC.

FILE TAG: FA00395.

FILE NAME: STATION HISTORICAL FILE (TD-9767).  
 ALIAS HISTORY OF COOPERATIVE STATIONS;  
 ALIAS SUBSTATION HISTORY FILE.

TIME PERIOD: Selected stations 1876 to present; all stations 1948 through the present (updated daily).

GEOGRAPHIC COVERAGE: United States, U. S. Pacific Islands, U. S. Virgin Islands, and Puerto Rico.

FILE SIZE: One magnetic tape; 9-track, odd parity, 6250 bpi, SDF mode, labeled. Copies of this magnetic tape are available in ASCII, EBCDIC, or SDF mode.

FORMAT: 80 characters per record, 100 records per block.

FILE STRUCTURE: Information in this file is sorted by State number and substation number within the State. The documentation TD-9767 includes a list of State numbers.

CONTENTS: The major parameters that make up this file include state number, substation number, state climatic division number, station name, station type, latitude and longitude (degrees and minutes), elevation (to nearest 10 feet), year and month records begin and end, WBAN station number, and indicators for types of data recorded.

ABSTRACT: The Station Historical File is a description of all stations for which an alphanumeric station number has been assigned. The History indicates whether or not data are in digitized form; it is maintained for all alphanumeric numbered stations either active or closed.

In 1953, a Substation Network Plan was developed to provide immediate and long range goals for the establishment of substations. This involved evaluation by state climatologists, hydrologists, and Meteorologists-in-Charge of National Weather Service stations, and reviewed by offices responsible for those functions at National Weather Service Headquarters. Specific criteria were taken into consideration for the main components of substations which resulted in the Substation Network for each state. To preserve the continuity of long time records, existing substations were retained in the network where practical. When changes occur in the status of a substation, the revised form is submitted by National Weather Service Substation Network specialists to the NCDC.

State Climatological Divisions were used in early Climatological Service Bulletins about the turn of the century, however, they were not in general use until the

beginning of the Climatological Data publication in January 1914. At that time, divisions were used in 29 States. By January 1947 in 35 States. From 1948 to 1955, a number of climatological divisions were changed, primarily to bring them into agreement with crop reporting districts used by the U.S. Department of Agriculture. Beginning in 1948, the divisions were used only in presenting selected data. In 1956 and 1957, all division boundaries were reviewed and necessary changes were made to conform with climate-influencing physical features (topography, moisture sources, etc.) and, where practicable, with crop reporting district boundaries used by the U.S. Department of Agriculture. A change in division number is treated as a correction to the Station Historical File. Division numbers may change, but mainly for operational purposes; such changes do not effect the continuity of station records. A division number is used as a tool for summarizing data on an areal basis smaller than that of the state.

Every effort has been made to assure accuracy of the Station Historical File. If errors are detected, users should contact the NCDC.

This file is available for purchase from the NCDC.

FILE TAG: FA00165.

FILE NAME: STABILITY ARRAY-STAR (TD-9773).

TIME PERIOD: Not time dependent.

GEOGRAPHIC COVERAGE: 300 United States and Select World-Wide Stations.

FILE SIZE: 8 magnetic tapes; 9-track, odd parity, 1600bpi, ASCII mode, labeled. Copies of these data are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: 84 characters per record, 10 records per block.

FILE STRUCTURE: Data are sorted on each magnetic tape by header number or station number (WBAN or WMO).

CONTENTS: The major parameters that make up this file are wind direction (16 points and calm), stability class (A-G), wind speed (kts) frequencies, station ID, and beginning and ending year. The STAR output consists of monthly, seasonal, or annual frequency and percent frequency tables of wind direction versus wind speed groups for each stability category.

ABSTRACT: STAR was born from the work of Pasquill (1951), Turner (1964), and Martin and Tidvart (1968). It provides, at least roughly, the diffusion characteristics for the lowest part of the atmosphere and biosphere. It is an objective method of determining stability from readily available surface meteorological observations utilizing only the variables of ceiling height, total sky cover, and wind direction and speed as input. The methodology employed recognizes that stability near the ground is dependent primarily upon net radiation and wind speed. Wind direction is not a factor in objective determination of stability categories. Without the influence of clouds, insolation (incoming radiation) during the day is dependent mainly upon the solar elevation, which is a function of time of year, time of day, and station location. When clouds exist, their cover and thickness decrease incoming and outgoing radiation. In this system, insolation is estimated by solar elevation and modified for existing conditions of total sky cover and ceiling height. At night, estimates of outgoing radiation are again based on total sky cover and ceiling height. The STAR output consists of frequency and percent frequency tables of wind direction versus wind speed groups for each stability category. This system produces seven categories ranging from extremely unstable (A) to neutral (D) to extremely stable (G) and can be summarized on a monthly, seasonal, or annual basis.

NCDC can produce a STAR for any year or number of years for any station (world-wide) whose hourly or 3-hourly surface meteorological observations are stored in TD-3280 or TD-9999 AFDATSAV files. An optional output of the STAR that NCDC can generate is formatted, 100 characters per record/10 records per block, individual surface meteorological observations and associated stability categories on magnetic tape or other computer media.

A STAR TABULATIONS MASTER LIST (Index) is available to users from the NCDC. There are no known related files.

This file is available for purchase from the NCDC.

FILE TAG: FA00229.

FILE NAME: DIGITIZED ISOPLETHS OF THE WORLD-VOLUME IX (TD-9781).

TIME PERIOD: January 1850 through December 1970.

GEOGRAPHIC COVERAGE: World Oceans - Pole to Pole.

FILE SIZE: 14 magnetic tapes; 9-track, odd parity, 1600 bpi, ASCII mode labeled. Copies of these data are available on magnetic tape (EBCDIC or ASCII mode) and other media.

FORMAT: 33 characters per record, 100 records per block.

FILE STRUCTURE: One contour parameter is on one reel of magnetic tape. The X and Y coordinates of the contours make up this file.

CONTENTS: The major parameters that make up this file are monthly means and standard deviations of wind speed (knots), surface air temperature (Deg. C), sea surface temperature (Deg. C), air-sea temperature differences (Deg. C), dewpoint temperature (Deg. C), sea level pressure (MB), and wave heights (meters).

ABSTRACT: The primary source of data utilized to generate this file was the Marine Atlas files (TD-9760) that were used to produce the 5 volume series of the U.S. Navy Marine Climatic Atlas of the World, a related file. The marine observations went through a computer check for internal consistency and then duplicate observations were eliminated. Also, a manual edit was performed on the extreme values. These data were further quality controlled through the analyses. The polar regions data were pulled from the TD-11XX marine surface observations files and quality controlled similar to the Marine Atlas (TD-9760) files.

This file is available for purchase from the NCDC.

FILE TAG: FA00235.

FILE NAME: SPECTRAL OCEAN WAVE MODEL - HINDCAST (TD-9782).

TIME PERIOD: Atlantic Ocean; January 8, 1956 through December 30, 1975. Pacific Ocean; September 1, 1964 through February 23, 1977.

GEOGRAPHIC COVERAGE: Atlantic and Pacific Oceans.

FILE SIZE: 90 magnetic tapes; 9-track, odd parity, 6250bpi, ASCII mode, labeled. Copies of these data, or copies of data selected by time or grid point, are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: ANSI D format, blocked variable length records. Each block contains a maximum of 5000 characters with an average record length of 1290 characters. The first four characters of each record are counters that indicate the number of characters in the record. If read with standard FORTRAN or COBOL, the counters are transparent and should be ignored.

FILE STRUCTURE: Data in this file are sorted as follows:

1. 46 magnetic tapes of grid point sorted files - these data are in grid point time sort with a tape mark (file mark, standard ANSI label) between grid points.
2. 44 magnetic tapes of synoptic sorted files - these data are sorted by year, month, day, hour.

CONTENTS: The Spectral Ocean Wave Model data are not observations. The major parameters that make up this file are wind direction (with respect to the subprojection orientation), wind speed (knots to 10ths), friction velocity (feet per second to 10ths), white caps (percent coverage), array elements (number of array elements to be encountered), array position (location in the 180 element array of the next energy value), and wave energy (value of the array position in feet squared to the hundredths). The data array contains a maximum of 180 values. Only non-zero values will appear on the tape. Therefore, the position in the array is given with the corresponding value.

ABSTRACT: The data in this file were originally created by the U.S. Navy Fleet Oceanographic Center. These data were processed, quality controlled, and converted to ANSI format by the NCDC.

The Spectral Ocean Wave Model is a deep water model that produces estimates of wave conditions from a wind field. Historical wind fields were constructed by blending wind

and pressure data. The reasonableness of the data depends on the restrictions of the model being met;

1. The data point is in deep water (water depth is twice the wave length),
2. The data point is sufficiently far from land to preclude interference with wave patterns, and
3. The wind field used to drive the model is representative.

The grid points used in the Spectral Ocean Wave Model are based on an icosahedralgromic projection. The icosahedron is orientated around the globe so as to minimize the number of faces required to cover the Atlantic and Pacific Oceans. Therefore, the poles of the projection do not correspond to the poles on the globe. Also, the direction that corresponds with North on each face will not coincide with North on the globe. Local North on the faces of the projection is perpendicular to one of the sides of each face. Each face of the projection contains 325 grid points.

Users of this file may wish to generate "true" wind and wave direction and geographical location (latitude-longitude) of a point. A program (QUALIFER N3!TK, FILE TRK, ELEMENT NAME PARAMTS, Y536 through Y885) is available for this purpose.

Related files are TD-9783, TD-9786, TD-9787, TD-9791, and TD-9797.

This file and the above program are available for purchase from the NCDC.



FILE TAG: FA00295.

FILE NAME: SPECTRAL OCEAN WAVE MODEL-HINDCAST (TD-9783).

TIME PERIOD: Atlantic Ocean; January 8, 1956 through December 30, 1975. Pacific Ocean; September 1, 1964 through February 23, 1977.

GEOGRAPHIC LOCATION: Atlantic and Pacific Oceans.

FILE SIZE: 44 magnetic tapes; 9-track, odd parity, 6250 bpi, binary. Copies of these data are available on magnetic tape (binary) and other computer media. A program called SOWM-PRINT will print out data for selected grid points and dates.

FORMAT: 60-bit word binary. This is an internal format to the CDC-6000 series computers.

FILE STRUCTURE: There are 22 magnetic tapes sorted by grid point and 22 magnetic tapes sorted by time. This file is arranged into logical records containing two 60-bit words of data. Logical records are blocked into variable length physical records containing not more than 500 60-bit words. The last word of each block is a standard CDC check-sum.

CONTENTS: The Spectral Ocean Wave Model (SOWM) data are not observations. The major parameters that make up this file are; beginning of record flag, time information, ocean basin, grid point, subprojection, wind direction (with respect to the subprojection orientation), friction velocity (feet per second to 10ths), white caps (percent coverage), wind speed (knots to 10ths), array position (location in the 180 element array of the next energy value), and wave energy (value of the array position in feet squared to the hundredths).

ABSTRACT: The data in this file were originally created by the U.S. Navy Fleet Numerical Oceanographic Center (FNOC). These data were processed and quality controlled by the NCDC. The SOWM used at the FNOC generates an array of wave frequencies versus energies for each model grid point from ship observations.

The grid points used in the SOWM are based on an icosahedralgnomic projection. The icosahedron is orientated around the globe so as to minimize the number of faces required to cover the Atlantic and Pacific Oceans. Therefore, the poles of the projection do not correspond to the poles on the globe. Also, the direction that corresponds with North on each face will not coincide with North on the globe. Local North on the faces of the projection is perpendicular to one of the sides of each face. Each face of the projection contains 325 grid points.

This data set was generated on a CDC-6500, and intended for internal use at the FNOC. Use of this data file may be cumbersome on machines with architecture different from the CDC-6500. The data in this file are identical to that in related file TD-9782, but in a different format. Please refer to the TD-9783 reference manual for additional information. Related files are TD-9782, TD-9786, TD-9787, TD-9791, and TD-9797.

This file is available for purchase from the NCDC.

FILE TAG: FA00014.

FILE NAME: SOWM PARAMETERIZED DATA (TD-9786).

TIME PERIOD: North Atlantic Ocean January 8, 1956-December 30, 1975;  
North Pacific Ocean September 1, 1964-February 23, 1977.

GEOGRAPHIC COVERAGE: North Atlantic and North Pacific Oceans.

FILE SIZE: 7 magnetic tapes; 9-track, odd parity, 6250bpi, ASCII mode, labeled. Copies of these data are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: 91 characters per record, 100 records per block.

FILE STRUCTURE: This file consists of two magnetic tapes for the North Atlantic Ocean and five magnetic tapes for the North Pacific Ocean. Each magnetic tape is multifile - a file consists of one grid point-subprojection. Data are sorted by ocean basin, subprojection, grid point, year, month, day, hour, latitude, longitude.

CONTENTS: The major parameters that make up this file are wind direction (degrees), wind speed (kts), significant wave height (ft), wave slope ( $\alpha$ ), primary wave direction (degrees), secondary wave direction (degrees), peak period in the direction of primary wave direction (seconds), peak period based on the density spectrum, zero crossing period (average of the periods between zero-up crossing of the wave surface displacement trace against time), directionality (vector averages of energy by direction/scalar average), and spreading parameter (a measure of the angular spread of the directional wave energy about the mean direction).

ABSTRACT: The primary source of data used to produce this file was magnetic tape TD-9782 files. This file is intended to provide the design, scientific, and operational communities computer compatible data that more accurately represents the overall wave climate of ocean areas than is available from other sources. Related files are TD-9787, TD-9791, TD-9797, and the U. S. NAVY HINDCAST SPECTRAL OCEAN WAVE MODEL CLIMATIC ATLAS.

This file is available for purchase from the NCDG.

FILE TAG: FA00265.

FILE NAME: ARMY WAVE INFORMATION STUDY-INPUT (TD-9787).

TIME PERIOD: January 1956 through December 1975.

GEOGRAPHIC COVERAGE: Atlantic Coastal Areas of the United States.

FILE SIZE: 41 magnetic tapes; 9-track, odd parity, 6250 bpi, ASCII mode, labeled. 22 magnetic tapes; 9-track, odd parity, 1600 bpi, ASCII mode, labeled. Copies of these data, or selected station's data, are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: Phase I - 75 characters per record, 50 records per block, Phase I (windfields) - 96 characters per record, 168 records per block, Phase II - 65 characters per record, 60 records per block, Phase II (windfields) - 100 characters per record, 161 records per block, Phase III - 72 characters per record, 224 records per block.

FILE STRUCTURE: These magnetic tapes are sorted by station (grid point) and time. They are multifile with one station's (grid point) data per file as follows:

1. Phase I - Tape 1 contains grid points 1-7, and tape 2 grid points 8-13,
2. Phase II - Grid points 1-20, 21-40, 41-60, and 61-73 are on four separate tapes,
3. Phase III - Grid points 1-10, 11-20, 21-30, 31-40, 41-50, 51-60, 61-70, 71-80, 81-90, 91-100, 101-110, 111-120, 121-130, 131-140, 141-150, 151-160, and 161-166 are on seventeen separate tapes,
4. Phase I and Phase II windfields are on one magnetic tape per year (1956-1975) for each phase.

CONTENTS: The major parameters that make up this file are;

1. Phase I (Deep Water Wave Data) - significant sea height (centimeters), dominant sea period (seconds), sea direction (degrees), sea swell height (centimeters), sea swell period (seconds), and sea swell direction (degrees),
2. Phase I (windfields) - initial input wind direction (degrees) and speed (knots),
3. Phase II (Continental Shelf Zone Wave Data) - contains same parameters as Phase I,

4. Phase II (windfields) - contains same parameters as Phase I,
5. Phase III (Near Shore Wave Data) - 10 meter constant depth elements of sea wave and swell heights (centimeters), periods (seconds), and direction (degrees) of movement relative to the shoreline orientation.

Directions for wind, sea, and sea swell are the directions "toward which" waves or wind travel in degrees with "0" as East, "90" as North, "180" as West, and "270" as South. Caution should be used when converting WIS directional "toward which" values to meteorological "from which" directional values.

**ABSTRACT:**

The parameters in this file were the primary input used to create a wave climate study for the United States coastal waters. The study was initiated in late 1976 by the U.S. Army Waterways Experiment Station, U.S. Army Corps of Engineers.

This Army Wave Information Study - Input file differs from the U.S. Navy Spectral Ocean Wave Data files TD-9782, TD-9783, and TD-9791 in that the extratropical storms have been modeled in greater detail, the grid mesh is much finer, and coastal influences are considered. Hurricane data were not modeled.

Phase I - Deep Water Wave Data are derived from a spectral model, including air-sea interaction and wave-wave interactions.

Phase II - Continental Shelf Zone Wave Data are derived from a spectral model, including air-sea interaction, refraction, diffraction, shoaling, and bottom friction.

Phase III - Near Shore Wave Data (standard 10 meter depth) are derived by transforming Phase II wave data to 10 mile coastal segments. Transformations consider all Phase II wave processes plus coastal orientation, tides, and storm surges. Users should include quality control procedures when using Phase III data as they were checked for completeness only.

Phase I & III - Windfields data were generated for a 31 by 31 spherical orthogonal grid which covers the North Atlantic Ocean. For each grid point, a 3-hourly quasi-geostrophic wind speed and direction was constructed from pressure gradients in time and space, along with certain thermal characteristics of the planetary boundary layer. These surface winds were then fed into a numerical model to simulate wave generation propagation and decay. There are no known data problems in this file.

This file is available for purchase from the NCDC who will furnish documentation that includes the latitude and longitude of each grid point for all phases when data are purchased.

FILE TAG: FA00266.

FILE NAME: HISTORICAL SUNSHINE DATA (TD-9788).

TIME PERIOD: January 1891 through December 1984 (updated periodically).

GEOGRAPHIC COVERAGE: All States - Variable period of record for 240 stations.

FILE SIZE: One magnetic tape; 9-track, odd parity, 1600 bpi, ASCII mode, unlabeled. Copies of these data, or copies of selected stations data, are available on magnetic tape (EBCDIC or ASCII mode) and other media.

FORMAT: 100 characters per record, 71 records per block.

FILE STRUCTURE: This is a multifile tape containing 3 files. Data are sorted in each file by station identifier. The station identifier is a combination of the first four characters of the station name, with the fifth position being the first letter of the state.

CONTENTS: File 1 contains monthly and annual percentages of possible sunshine computed from the data in files 2 and 3. File 2 contains the number of hours of measured sunshine monthly and annual. File 3 contains monthly and annual totals of the maximum possible hours of sunshine.

ABSTRACT: Official sunshine durations for 20 stations were first published for 1891 in the REPORT OF THE CHIEF OF THE WEATHER BUREAU. A decade later there were 84 stations in the sunshine network with the number increasing to 165 stations in 1920. A maximum of 183 stations were operational in 1945. Since 1971, there have been approximately 160 stations in operation. This file contains data for 240 different stations which were equipped with sunshine recorders for some part of the period 1891 through 1984. Fifteen stations have records of 90 or more years. There are 185 stations that have records for at least 30 years. Historical Climatology Series 2-3 contains details regarding the station histories.

Prior to 1904, the annual sunshine value were listed to the 10ths decimal place, but all values in files 1 and 2 are rounded to the nearest whole number. The monthly sums in a given year will not match the annual totals due to this rounding. This data set is the most extensively quality controlled file of monthly averages of sunshine data available today. Quality control included both visual and automated consistency checks. There are no known data problems in this file.

Related data files are: Climatological Data National Summary, Local Climatological Data, and TD-3210.

This file is available for purchase from the NCDC.



FILE TAG: FA00268.

FILE NAME: TURBIDITY DATA FILE (TD-9789).

TIME PERIOD: January 1, 1972 to the present (updated annually).

GEOGRAPHIC COVERAGE: Selected Global stations.

FILE SIZE: One or more magnetic tapes; 9-track, odd parity, 6250 bpi, ASCII mode, labeled. Copies of these data, or copies of selected stations data, are available on magnetic tape (EBCDIC or ASCII mode) and other media.

FORMAT: 232 characters per record, 20 records per block.

FILE STRUCTURE: These discrete observations of turbidity data are sorted on each magnetic tape by NCDC station number and WMO station number. All stations data from January 1, 1972 through December 31, 1981 are on one reel of magnetic tape. Subsequent data are sorted on annual reels of magnetic tape. Period of record merges which will replace the annual reels of magnetic tape occur every five to ten years.

CONTENTS: This file contains discrete observations of turbidity data taken at various times during the day. Major parameters included are sunphotometer wavelength measurements (nanometers), calibration factors corresponding to the wavelengths of the sunphotometer, Tau values, diopter (air mass measurement), and meter value in nanometers of sunphotometer. Other parameters included are aerosol optical depths, corrected factor of mean sun-earth distance, visibility, obstruction to vision, dry bulb and dew point temperatures (Deg. C), wind direction (36 points) and speed (knots), sky cover (coded), temperature of recording device (Deg. C), station pressure (MB), calculated aerosol-optical depth (natural LO), true air mass values (calculated from the date, time, and location of the observation), wavelength exponents, and quality control flags (disagreement of measurements, out of range parameters, observed versus calculated measurements, and dew point temperature greater than dry bulb temperature).

ABSTRACT: Atmospheric turbidity is a measurement of solar extinction by aerosols (suspension of insoluble particles in a gas) in the atmosphere. It gives an indication of the amount of particles in a certain size range in the column of air between the observer and the top of the atmosphere.

The first attempts, in which to measure turbidity with a broadband pyrhelimeter, were made in 1922 by Linke and Bode and in 1929 by Angstrom. Assumptions were made about the transmission and magnitude of the energy in the broad spectral region along with the transmission properties of several different filters within the pyrhelimeter. These

assumptions resulted in only a gross estimate of the particle load. In 1959, Volz introduced a sunphotometer which measured the solar energy effectively on a single wavelength at 500NM. This deleted the broadband assumptions. By 1971, a dual wavelength sunphotometer (500NM and 380NM) replaced the single wavelength instruments. Throughout the 1970's new sunphotometers were developed to measure solar energy at several discrete wavelengths in the spectral region from 350NM to 2300NM.

Turbidity data were first processed at the NCDC with the 1972 data year. Reprocessing was completed in 1982 satisfying new requirements specified by members of the 2nd World Meteorological Organization (WMO) expert meeting on turbidity measurement, Boulder, CO, 1978. This provision provided 1) allowance in the data record for up to 4 values of turbidity at different wavelengths, 2) a change to standard wavelengths of 380NM and 500NM, 3) turbidity data will be in natural logs (base e) instead of common logs (base 10) and it is now called aerosol optical depth, and 4) elimination of pyrhelimeter data from aerosol optical depth calculations based on sunphotometer measurements.

The 1982 reprocessing of the turbidity file removed all known errors from the previously processed data. Errors in the data due to incorrect calibration constants, scattering and absorption coefficients, degraded instruments, or improper observation techniques may remain. The original meter values, constants and coefficients are retained in the archive file to permit correction to any portion of the data that is shown to be in error in the future.

A related file is the annual Global Atmospheric Background Monitoring for Selected Environmental Parameters (BAPMON) data publication. The publication, or microfiche copies, contain atmospheric turbidity daily and monthly mean values.

This file is available for purchase from the NCDC.

FILE TAG: FA00133.

FILE NAME: SAVANNAH RIVER EXPERIMENT (TD-9790).

TIME PERIOD: March 3, 1975 through September 20, 1977.

GEOGRAPHIC COVERAGE: Savannah River Plant area.

FILE SIZE: Six magnetic tapes; 9-track, odd parity, 1600bpi, ASCII mode, labeled. Copies of these data are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT:

1. Meteorological Data Base; 24 characters per record, 500 records per block,
2. Weekly and Twice Daily Average Krypton-85 Concentration data; 60 characters per record, 100 records per block,
3. Meteorological Tower Observations; 150 characters per record, 50 records per block,
4. Monthly and Hourly Wind Rose Data and Hourly Acoustic Data; 486 Characters per record, 10 records per block.

FILE STRUCTURE: The meteorological data base is stored on three reels of magnetic tape, each of the other files are stored on one reel of magnetic tape. Data are sorted by time on each tape, either hourly, daily, or monthly.

CONTENTS: The major parameters that make up this file include; hourly wind speed (meters/sec X 10), wind direction (degrees X 10) and directional range at one to three levels, ambient temperature ( $^{\circ}$ Kevin X 10), dew point temperature ( $^{\circ}$ Kevin X 10), vertical temperature gradient, sea level and station pressure (MB X 10), precipitation (MM X 10), and solar radiation (cal/cm<sup>2</sup>/min X 10) when available; weekly and twice daily average Krypton-85 (Curie) concentrations; and hourly acoustic data.

ABSTRACT: This sampling program was designed to take advantage of the Krypton-85 plume produced by routine emissions from the operation of chemical separation facilities at the Savannah River Plant. These data were collected from a cryogenic air sampling network of 13 stations surrounding the Savannah River Plant. Weekly air sampling began in March 1975. Weekly and twice daily samples of Krypton-85 were collected from September 1976 through mid-September 1977.

Experimentation resultant data are contained in this file. Documentation is NOAA Technical Memorandum ERL ARL-80, January 1980. There are no known related files.

This file is available for purchase from the NCDC.

FILE TAG: FA00296.

FILE NAME: SPECTRAL OCEAN WAVE MODEL-OPERATIONAL (TD-9791).

TIME PERIOD: October 1, 1975 through December 31, 1985.

GEOGRAPHIC COVERAGE: Atlantic and Pacific Oceans.

FILE SIZE: 49 magnetic tapes; 9-track, odd parity, 6250 bpi, binary. Copies of these data are available on magnetic tape (binary) and other computer media. A program called SOWM-PRINT will print out data for selected grid points and dates.

FORMAT: 60-bit word binary. This is an internal format to the CDC-6000 series computers. Maximum block length is 2000 60-bit words.

FILE STRUCTURE: This file is sorted by time, grid point and there are no tape marks between date-time groups. Most of the tapes contain 3 to 4 months data through May 1981 and 2 months data subsequently.

CONTENTS: The Spectral Ocean Wave Model (SOWM) data are not observations. The major parameters that make up this file are wind direction (with respect to the subprojection orientation), wind speed (knots to 10ths), friction velocity (feet per second to 10ths), white caps (percent coverage), array elements (number of array elements to be encountered), array position (location in the 180 element array of the next energy value), and wave energy (value of the array position in feet squared to the hundredths). The data array contains a maximum of 180 values.

ABSTRACT: The data in this file were created by the U.S. Navy Fleet Oceanographic Center (FNOC) and are a by-product of normal operational processing. This file has not been subjected to any quality control.

The grid points used in the SOWM are based on an icosahedralgnomic projection. The icosahedron is orientated around the globe so as to minimize the number of faces required to cover the Atlantic and Pacific Oceans. Therefore, the poles of the projection do not correspond to the poles on the globe. Also, the direction that corresponds with North on each face will not coincide with North on the globe. Local North on the faces of the projection is perpendicular to one of the sides of each face. Each face of the projection contains 325 grid points.

This data set was generated on a CDC-6500, and intended for internal use at the FNOC. Use of this data file may be cumbersome on machines with architecture different from the CDC-6500.

This data file is no longer updated with the last tape valid to December 31, 1985. The data file replacing TD-9791 is the Global Spectral Wave Model (GSOWM) TD-9797. Related files are TD-9782, TD-9783, TD-9786, and TD-9787.

This file is available for purchase from the NCDC.

FILE TAG: FA00361.

FILE NAME: PACIFIC SEA SURFACE TEMPERATURE DATA (TD-9792).

TIME PERIOD: January 1947 through December 1981.

GEOGRAPHIC COVERAGE: North Pacific Ocean, 20N-60N, 110W-130E.

FILE SIZE: One magnetic tape; 9-track, odd parity, 1600bpi, ASCII mode, labeled. Copies of these data are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: 80 characters per record, one record per block.

FILE STRUCTURE: Data are sorted on the magnetic tape by 5-degree latitude rows (20N, 25N---60N). The gridded data are stored in records such that one latitude row is given on a single record. Missing mean temperatures are reported as 999.

CONTENTS: The major parameters that make up this file are gridded monthly mean sea surface temperatures for each month of each year. The values are monthly means in tenths of degrees Fahrenheit centered on 5-degree latitude-longitude intersections.

ABSTRACT: This Pacific sea surface temperature set (Namias-Born) was compiled by the Scripps Institution of Oceanography and was sent to the NCDC in October 1982. These data represent a gridded 9 by 25 latitude/longitude array with 9 latitude rows from 60 degrees North to 20 degrees North and 25 longitude columns from 110 degrees West to 130 degrees East. There are no known data problems in this file.

This file is available for purchase from the NCDC.

FILE TAG: FA00408.

FILE NAME: WIND ENERGY RESOURCE INFORMATION SYSTEM (TD-9793).

TIME PERIOD: Variable records for each station during the period January 1, 1948 through December 31, 1978.

GEOGRAPHIC COVERAGE: United States selected stations.

FILE SIZE: 22 magnetic tapes; 9-track, odd parity (6 tapes 6250 bpi), 1600 bpi, ASCII mode, labeled; 1738 microfiche. Copies of these data are available on magnetic tape (EBCDIC or ASCII mode) and other media.

FORMAT: TABLES--133 characters per record, 100 records per block,  
 ANNUAL--56 characters per record, 144 records per block,  
 FREQUENCY--177 characters per record, 37 records per block,  
 CLIMATE--90 characters per record, 14 records per block,  
 PERSISTENCE--75 characters per record, 28 records per block,  
 PROGRAMS--variable length records with no more than 7176 characters per block.

FILE STRUCTURE: TABLES--13 magnetic tapes; multifile by station,  
 ANNUAL--1 magnetic tape; multifile by period of record,  
 FREQUENCY--5 magnetic tapes; multifile by station,  
 CLIMATE--1 magnetic tape; multifile by period of record,  
 PERSISTENCE--1 magnetic tape; multifile by period of record,  
 PROGRAMS--1 magnetic tape; four files.

All of the above magnetic tapes except TABLES were designed to be used as an interactive system. These 9 magnetic tapes contain operational programs and data files that must be transferred from tape to disc in order to use this system.

CONTENTS: The analyses from the operational programs and data files produced the following TABLES for approximately 975 stations. These tables are on magnetic tape, or one microfiche per station for each time period of constant anemometer location. Standard information given with each table includes the table number, station name, station WBAN number, period of record, number of valid observations, and anemometer height and reference location.

<u>TABLE</u>	<u>DESCRIPTION</u>
01	Hourly Mean Speed and Frequency by Month,
02	Annual Hourly Mean Speed and Frequency,
03	Annual Hourly Speed Duration,
04	Average Wind Speed and Wind Power (Hour, Month, Season),

- 05 Maximum, Minimum, Mean Hourly Wind Speed by Month,
- 06 Average Wind Speed and Power (Month, Year),
- 07 Standard Deviation of Speed and Power (Month, Year),
- 08 Wind Speed Pattern Factor (Month, Year),
- 09 Number of Observations (Month, Year),
- 10 Significant Weather Parameters and Events by Month,
- 11 Monthly Wind Speed Frequency,
- 12 Joint Wind Speed/Direction Frequency by Month,
- 13 Annual Joint Wind Speed/Direction,
- 14 Annual Joint Wind Power/Direction Frequency,
- 15 Wind Speed Duration by Direction by Month,
- 16 Annual Wind Speed Duration by Direction,
- 17 Annual Wind Power Duration by Direction,
- 18 Wind Speed Persistence Above Speed Threshold,
- 19 Wind Direction Constancy by Direction.

The nine magnetic tapes designed to be used as an interactive system contain:

- 1. ANNUAL—Means and standard deviations of wind speed and wind energy flux, pattern factor, and Weibull distribution factors (month/year),
- 2. FREQUENCY—Mean wind speed and frequency distributions by hour of the day and by direction for each month of the period including and annual summary,
- 3. CLIMATE—Means of air temperature, pressure, and density, plus occurrences of 13 weather elements (month),
- 4. PERSISTENCE—The number of runs of various durations in which the wind speed exceeded a threshold speed or the direction remained constant for the period of record.
- 5. PROGRAMS—File 1 = program file of computer codes, File 2 = station index file of each period record, File 3 = an original sequential "National Wind Resource Data Grid," File 4 = a direct access to National Resource Data Grid.

#### ABSTRACT:

The Pacific Northwest Laboratory, Battelle Memorial Institute, Richland, Washington integrated regional wind resource assessment data into a computerized data base in 1981-1982. Through the application of various techniques, wind data from 975 selected stations were converted into resource assessment estimates of wind power class at exposed sites. The major source of wind data that went into the resource assessments was NCDC's digital file TD-3280. Analyses of each station's data were performed on each period of record during which the anemometer height, anemometer location, and frequency of



observation remained constant. During the fall of 1982 the software and data in this information system was transferred to the NCDC.

This file is available for purchase from the NCDC.

FILE TAG: FA00247.

FILE NAME: SOLMET-UNEDITED HOURLY SOLAR RADIATION (TD-9794).

TIME PERIOD: January 1, 1981 through October 31, 1985.

GEOGRAPHIC COVERAGE: Selected United States stations.

FILE SIZE: 16 magnetic tapes; 9-track, odd parity, 1600 bpi, ASCII mode, labeled. Copies of these data are available on magnetic tape (EBCDIC or ASCII mode), other computer media, or microfiche.

FORMAT: 1981, 1982 are 30 characters per record, 10 records per block, 1983 to the present are 32 characters per record, 20 records per block.

FILE STRUCTURE: Historical data are filed on yearly reels of magnetic tape. January 1984 through October 1985 are filed on monthly reels of magnetic tape. The data are sorted on each magnetic tape by WBAN station number and time.

CONTENTS: The major parameters that make up this file are unedited hourly values of global, direct, and diffuse solar radiation (Watts/m<sup>2</sup>).

ABSTRACT: Funding to provide complete processing and quality control of solar radiation data was terminated January 1, 1981. Although this data file adds to related historical SOLMET data files TD-9724 and TD-9736, most of this file consists of data that are unedited, of poor quality, and includes periods of missing values.

This file is available for purchase from the NCDC.

FILE TAG: FA00784.

FILE NAME: CLIMATIC DIAGNOSTICS DATA BASE (TD-9795).

TIME PERIOD: October 1, 1978 through September 30, 1983.

GEOGRAPHIC COVERAGE: Global.

FILE SIZE: 4 magnetic tapes; 9-track, odd parity, 6250 bpi, binary, unlabeled. Copies of these data are available on magnetic tape (binary) for the cost of reproduction.

FORMAT: Binary 32-bit integer words; 32,000 byte blocks.

FILE STRUCTURE: Each magnetic tape is multifile. Each file is a specific month, year and is composed of 450 logical records. The first record consists of four 32-bit integer words indicating the year, month, hour (0000 or 1200 GMT) and the number of analyses used to compute the monthly accumulated sums.

CONTENTS: The Climatic Diagnostics Data Base contains monthly averages of selected fields from the National Meteorological Center's Global analyses. The major parameters that make up this file are monthly averages of the following elements for constant pressure levels of 1000-, 850-, 700-, 500-, 300-, 250-, 200-, 100-, and 50-millibars;

1. U (West/East) component of wind (meters/second),
2. V (South/North) component of wind (meters/second),
3. Temperature (Deg. K),
4. Geopotential height (geopotential meters),
5. Vertical velocity (millibars/second),
6. Specific humidity (grams/kilogram),
7. Vorticity (seconds<sup>-1</sup>),
8. Pressure (millibars),
9. Sums squared of U (West/East) component of wind (meters/second),
10. Sums squared of V (South/North) component of wind (meters/second),
11. Sums squared of temperature (Deg. K),
12. Sums squared of geopotential height (geopotential meters).
13. Sums squared of vertical velocity (millibars/second),
14. Sums squared of specific humidity (grams/kilogram),
15. Sums squared of vertical velocity (seconds<sup>-1</sup>),
16. Sum of cross product UV wind components (m<sup>2</sup>s<sup>-2</sup>)-- East-West transport of poleward momentum,
17. Sum of cross product UT components (ms<sup>-1</sup>K)-- East-West transport of heat,
18. Sum of cross product U and geopotential height (ms<sup>-1</sup>gpm)-- East-West transport of mass,

19. Sum of cross product U and vertical velocity ( $\text{mmbs}^{-2}$ )-- East-West transport of vertical momentum,
20. Sum of cross product U and specific humidity ( $\text{mgs}^{-1}\text{kg}^{-1}$ )-- East-West transport of moisture,
21. Sum of cross product U and vorticity ( $\text{ms}^{-2}$ )-- East-West transport of relative vorticity,
22. Sum of cross product V and temperature ( $\text{ms}^{-1}\text{K}$ )-- North-South transport of heat,
23. Sum of cross product V and geopotential height ( $\text{ms}^{-1}\text{gpm}$ )-- North-South transport of mass,
24. Sum of cross product V and vertical velocity ( $\text{mmbs}^{-2}$ )-- North-South transport of vertical momentum,
25. Sum of cross products V and specific humidity ( $\text{mgs}^{-1}\text{kg}^{-1}$ )-- North-South transport of moisture.
26. Sum of cross products V and vorticity ( $\text{ms}^{-2}$ )-- North-South transport of relative vorticity,
27. Stretching of vortex tubes ( $\text{s}^{-2}$ ).

ABSTRACT:

The Climate Analysis Center of the National Weather Service produced this archive (file) of monthly means of grid point analyses of basic meteorological data, then mean squares, and a number of mean cross products for up to 9 levels in the atmosphere. These data were obtained from the National Meteorological Center's final global optimum interpolation analysis. There are no known related files.

This file is available for purchase from the NCDC.

FILE TAG: FA00409.

FILE NAME: NOAA ATMOSPHERIC HANDBOOK-DATA TABLES (TD-9796).

TIME PERIOD: Variable 1896-1980.

GEOGRAPHIC COVERAGE: Global Atmospheres.

FILE SIZE: One magnetic tape; 9-track, odd parity, 6250 bpi, ASCII mode, labeled. A copy of this magnetic tape (EBCDIC or ASCII mode) is available for the cost of reproduction.

FORMAT: 80 characters per record, 25 records per block.

FILE STRUCTURE: This file consists of one multifile (226 files) magnetic tape that contains information, programs, and data largely taken from results published in scientific journals. Each tape file corresponds to a single data file. In general, sections of files are grouped according to the atmospheric area.

The first line of all data files, except those associated with programs ATTENCOEF and MICRO, is informational text, in most cases identifying the data type, substance, and source. Numerical values in the data files are arranged in increasing order, where applicable. Data values of "-1" indicate the value was not given in the original source.

The data description (tape file 3) contains brief descriptions of each atmospheric area covered by the Handbook data files; definition of data file variables, ranges, and units, listing of data file names, and description of data source. The Guide (tape file 4) gives general user notes and technical information needed to access or understand the computer tape, data files, and computer programs. Data File Formats (tape file 5) summarizes technical information on each data file in tabular form; data file variable definitions, units, and ranges in the order in which they appear on each line of a given data file, FORTRAN format statements used to create the data file, temperature, source, and computer tape file number. Appendix A (tape file 0) contains a list of all data files on the Handbook tape along with their corresponding tape file numbers. Appendix B (tape file 9) briefly describes the contents of single or groups of files on the tape. The computer program for retrieving attenuation coefficient data and microwave refractive index data are located in tape files 171-187 and 188-217 respectively.

CONTENTS: Atmospheric data tables stored in this file are described in World Data Center-A for Meteorology and World Data Center-A for Solar Terrestrial Physics REPORT UAG-89. This report will be furnished with all orders for this file.

Data areas cover Attenuation Coefficients for the Atmosphere and H<sub>2</sub>O; 1962 Standard Atmospheres; Cloud Drop Size Distributions for Water and Ice Spheres; Solar Spectral Irradiance (NIMBUS and SMM satellite solar irradiance data); Sky Spectral Radiance; Rayleigh Coefficients for Air; Refractive Indices for Air, Ice, Liquid H<sub>2</sub>O, and various Atmospheric Aerosols; and Relative Reflectance for Ice and H<sub>2</sub>O.

ABSTRACT:

During the course of several years of work in atmospheric spectroscopy, V. E. Derr of the NOAA Environmental Research Laboratories, Boulder, Colorado compiled several useful tables of atmospheric data from literature, and stored these data on computer disk and tape for ready access during theoretical calculations. In order to not pass judgement on the accuracy of these data the "Atmospheric Handbook: Atmospheric Data Tables Available on Computer Tape" (REPORT UAG-89) was published as a compromise between fully verified and uncertain values. Every effort was made to ensure the faithfulness of the tables to the source and to avoid degradation of interpolated values. If more than one source appears authoritative, both are quoted. Under this compromise, the researcher is advised to use the values cautiously, but a very valuable set of data is provided for researchers in solar radiation. The accuracy of these data can be determined only by reference to the source. The computer tape version of the Handbook contains all information in the bound REPORT UAG-89, as well as the data tables. The REPORT UAG-89 contains no data tables.

This file is available for purchase from the National Geophysical Data Center, NOAA/NESDIS E/GC2, 325 Broadway, Boulder, Colorado 80303 or the NCDC.

FILE TAG: FA00914.

FILE NAME: GLOBAL SPECTRAL OCEAN WAVE MODEL (GSOWM) (TD-9797).

TIME PERIOD: June 23, 1985 to the present (updated periodically).

GEOGRAPHIC COVERAGE: Global.

FILE SIZE: 8 magnetic tapes; 9-track, odd parity, 6250 bpi, binary, unlabeled. Copies of these data are available on magnetic tape (binary) and other computer media. A program called SOWM-PRINT will print out data for selected grid points and dates.

FORMAT: 60-bit word binary. The maximum record length is 2000 60-bit words. This is an internal format to the CDC-6000 series computers.

FILE STRUCTURE: This file is sorted by time, grid point, and there are no tape marks between date-time groups. Each magnetic tape contains approximately one month's data.

CONTENTS: The Global Spectral Ocean Wave Model (GSOWM) data are not observations. The major parameters that make up this file are; beginning of record flag, time information (year, month, day, hour), ocean basin, grid point, wind direction (degrees), wind speed (knots), friction velocity (feet per second to 10ths), white caps (percent coverage), array position (location in the 360 element array of the next energy value), and wave energy (value of the array position in feet squared to the hundredths).

ABSTRACT: The data in this file were originally created by the U.S. Navy Fleet Numerical Oceanography Center (FNOC). These data are processed and quality controlled by the NCDC.

The GSOWM used at the FNOC generates an array of wave frequencies versus direction for each model grid point. The GSOWM is based on a 2.5 by 2.5 degree latitude/longitude grid beginning at 90 Deg. North and 60 Deg. East. The difference in this model is to remove artificial boundaries that were in the other SOWM models TD-9782, TD-9783, and TD-9791. Each grid point contains spectra for 15 frequencies and 24 directions. In theory, the quality of these data is better than in previous SOWM models.

This data set was generated on a CDC-6500, and intended for internal use at the FNOC. Use of this data file may be cumbersome on machines with architecture different from the CDC-6500. Related files are TD-9782, TD-9783, TD-9786, TD-9787, and TD-9791.

This file is available for purchase from the NCDC.

FILE TAG: FA00013.

FILE NAME: AFRICAN HISTORICAL PRECIPITATION DATA (TD-9799).

TIME PERIOD: Variable, 1913 through 1981.

GEOGRAPHIC COVERAGE: Selected stations; Subequatorial Africa, Tropical West Africa, and the Sahel and Horn of Africa.

FILE SIZE: One magnetic tape; 9-track, odd parity, 1600bpi, ASCII mode, unlabeled. Copies of these data are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: 108 characters per record, 185 records per block.

FILE STRUCTURE: There are three data files on this magnetic tape. The files are in area, country, station, and time sort. Each logical record contains one year's monthly precipitation data for a station.

CONTENTS: The major parameter that makes up this file is sequential monthly total precipitation (whole millimeters).

ABSTRACT: The data in this file represent a collection of various sources of data from the African Continent including publications, hand-written data secured from visiting scientists, and in-country visits. The activity of procuring these data was supported by funds provided by the United States Agency for International Development (AID).

Data in this file were placed into computer compatible form by the Models Branch, Assessment and Information Services Center, NESDIS, NOAA, Columbia, Missouri. Although the inputs were checked with data received, and were used in the program for AID, users should be prepared to perform their own quality checks.

This file contains historical precipitation values for three areas; 1) countries in Subequatorial Africa, 2) countries in the Sahel and Horn of Africa, and 3) countries in Tropical West Africa. The countries within each file are as follows;

<u>File 1</u>	<u>File 2</u>	<u>File 3</u>
Angola	Burkina Faso	Benin
Botswana	Cape Verde Island	Cameroon
Burundi	Chad	Gen. African Rep.
Congo	Ethiopia	Ghana
Gabon	Gambia	Guinea



File 1

Kenya  
Lesotho  
Madagascar  
Malawi  
Mozambique  
Namibia  
Rwanda  
Swaziland  
Tanzania  
Uganda  
Zaire  
Zambia  
Zimbabwe

File 2

Mali  
Mauritania  
Niger  
Senegal  
Somalia  
Sudan

File 3

Guinea Bissan  
Ivory Coast  
Liberia  
Nigeria  
Sao Tome  
Sierre Leone  
Togo

This file is available for purchase from the NCDC.

FILE TAG: FA00010.

FILE NAME: MONTEREY GRIDDED ATMOSPHERIC & OCEANIC DATA (TD-9934).

TIME PERIOD: June 1974 through the present (updated monthly).

GEOGRAPHIC COVERAGE: Northern Hemisphere; June 1, 1974 through the present, Southern Hemisphere; August 1, 1974 through the present.

FILE SIZE: 265 magnetic tapes; 9-track, odd parity, 6250 bpi, binary, unlabeled. Copies of selected gridded parameters (e.g., 850 MB constant pressure temperatures or 700 MB constant pressure heights), or all parameters, are available on magnetic tape (binary).

FORMAT: Binary integer and CDC internal display codes.

FILE STRUCTURE: Gridded data are filed on two magnetic tapes monthly from June 1974 through February 1984 and three magnetic tapes monthly thereafter. In most cases, the Northern Hemisphere data are filed on one magnetic tape and the Southern Hemisphere data and Big Field data on other magnetic tapes. Each data block contains one parameter. The data block begins with identification information followed by 3969 data points. These data are a mixture of binary integer and CDC internal display codes. Grids are 63 X 63 points superimposed on a polar stereographic projection.

CONTENTS: This file consists of U.S. Navy Fleet Numerical Oceanographic Center, Monterey, California gridded analyses. The major parameters on each magnetic tape are listed in microfiche inventories at the NCDC. The following is a listing of some of the parameters that can be filed on each magnetic tape. Many of these parameters are not filed on each magnetic tape.

Cat	Parameter		
Num	Name	Description	Units
ATMOS OCEAN FIELDS			
A00	SFCCOVER	Hemispheric Surface Coverage	Obs
A01	PS	Surface Pressure	MB
A02	PS AL	Surface Analog	MB
A04	P TER	Pressure At Terrain Level	MB
A04	FS MED	Surface Pressure Mediterranean	MB
A07	TX	Surface Air Temperature (PE Model)	Deg C
A09	SFCPR	Pressure at Terrain Level	MB
A10	T AIR	Surface Air Temperature	Deg C
A11	T TER	Temperature Terrain Level	Deg C
A11	SOLARAD	Solar Radiation	GC/CM2/H
A12	E AIR	Surface Vapor Pressure	MB
A13	TG	Interface Temperature (PE Model)	Deg C
A15	EX	Surface Vapor Pressure (PE Model)	MB
A16	SCHF	Sensible and Evap. Heat Flux	GC/CM2/H
A18	THF	Total Heat Flux	GC/CM2/H

A20	L19 PBL	Boundary Layer U Wind Component	Kts
A21	V19 PBL	Boundary Layer V Wind Component	Kts
A27	VVWW	Marine Surface Winds Speed	Kts
A28	CDWW	Marine Surface Winds Direction	Deg/10
A29	UMAR	Marine Wind U Component	CM/S
A30	VMAR	Marine Wind V Component	CM/S
A31	OMG TER	Omega Vertical Motion Terrain	MCBR/S
A33	U MBO	Mediterranean Sfc Wind U Component	CM/S
A34	V MBO	Mediterranean Sfc Wind V Component	CN/S
A35	I EQUIV	Boundary Layer Wind Velocity	Kts
A36	CD PBL	Boundary Layer Wind Direction	Deg/10
A50	TP TER	Surface Dew Point	Dec C
A51	PS2	Surface Pressure	MB
A52	EHF	Evaporative Heat Flux	GC/CM2/H
A62	PRECIP	Surface Precipitation	CM
A80	CT2STRUC	Temperature Structure Function	(DEK.K./M** (2/3))*100**
A81	CN2STRUC	Refractive Index Structure Function	METERS** (-2/3)*10**15
B01	WD	Wind Wave Direction	Deg/10
B02	WP	Wind Wave Period	Seconds
B03	WH	Wind Wave Height	Ft
B04	SD	Ocean Swell Direction	Deg/10
B05	SP	Ocean Swell Period	Seconds
B06	SH	Ocean Swell Height	Ft
B07	CD	Combined Sea Direction	Deg/10
B08	CP	Combined Sea Period	Seconds
B09	CH	Combined Sea Height	Ft
B10	T SEA	Sea Surface Temperature	Deg C
B13	TS NFK	Expanded SST Norfolk Area	Deg C
B30	CURRSTRM	Current Stream Function	Direction
B31	CURRTRANS	Current Transport	NM/Day
B32	U CURR	U Component of Current	CM/S
B33	V CURR	V Component of Current	CM/S
B38	PLO	D* Potential Mixed Layer Depth	Ft
B40	POTMLD	Potential Mixed Layer Depth	Ft
B41	TR DEPTH	Transient Depth of Thermocline	CM
B50	HH1/3MED	Med. Significant Wave Height	Ft
B51	BT	Bathy Forecast for Point	
B51	FPW MBO	Mediterranean Primary Period	Seconds
B53	FW	Significant Wave Height	Ft
B54	PPW	Primary Period	Seconds
B55	PDW	Primary Direction	Deg/10
B56	SPW	Secondary Period	Seconds
B57	SDW	Secondary Direction	Deg/10
B58	WCP	Whitecaps (Percent)	Probability
B60	SPW MED	Med. Secondary Wave Period	Seconds
B61	SDW MED	Med. Secondary Wave Direction	Deg/10
B62	WCP MED	Med. Whitecaps	Probability
B70	Q HE	Latent and Sensible Heat	GC/C
B71	Q N	Total Heat Exchange	Std Heat
B72	Q SMR	Insolation-Reflected Radiation	Std Heat
B83	CG CTB	Current Transport CG Area B	NM/Day
B85	CG STB	T Sea CG Area B	Deg C
B91	CG COB	Current Direction CG Area B	Deg/10

C00	C	1000	100Mb Height	CM
C05	SD	1000	1000Mb Small Scale Disturbance	CM
C06	SR	1000	1000Mb Long Wave Pattern	CM
C09	SV	1000	1000Mb Polar Vortex	CM
C10	T	1000	1000Mb Temperature	Deg C
C10	T2	X	Virtual Temperature	
C22	I	1000	1000Mb Isotachs	Kts
C50	TP	1000	1000Mb Dew Point Depression	Deg C
D00	O	850	850MB Height	CM
D10	T	850	850MB Temperature	Deg C
D10	T	850X	Virtual Temperature	
D22	I	850	850MBS Isotachs	Kts
D32	OMG	850	850MB DP/DT	Mb/sec
D50	TP	850	850MB Dew Point Depression	Deg CC
E00	O	700	700MB Height	CM
E10	T	700	700MB Temperature	Deg C
E10	T	700X	Virtual Temperature	
E22	I	700	700MB Isotachs	Kts
E32	OMG	700	700MB DP/DT	Mb/sec
E50	TP	700	700MB Dew Point Depression	Dec C
F00	O	500	500MB Height	CM
F05	SD	500	500MB Small Scale Disturbance	CM
F06	SR	500	500MB Residual Longwave Pattern	CM
F07	SL	500	500MB Large Scale Disturbance	CM
F09	SV	500	500MB Polar Vortex	CM
F10	T	500	500MB Temperature	Deg C
F10	T	500X	500MB Virtual Temperature	
F11	S R	5 AL	500MB Residual Patterns Analog	CM
F13	SL	5 AL	500MB Lg Scale Dist Analog	CM
F22	I	500	500MB Isotachs	Kts
F32	OMG	500	500MB DP/DT	Mb/sec
F50	TP	500	500MB Dew Point Depression	Deg C
G00	O	400	400MB Height	CM
G10	T	400	400MB Temperature	Deg C
G10	T	400X	Virtual Temperature	
G50	TP	400	400MB Dew Point Depression	Deg C
H00	O	300	300MB Height	CM
H10	T	300	300MB Temperature	Deg C
H10	T	300X	Virtual Temperature	
H32	OMG	300	300MB DP/DT	Mb/sec
H50	TP	300	300MB Dew Point Depression	Deg C
I00	O	200	200MB Height	CM
I05	SD	200	200MB Small Scale Disturbance	CM
I06	SR	200	200MB Long Wave Patterns	CM
I07	SL	200	200MB Large Scale Disturbance	CM
I10	T	200	200MB Temperature	Deg C
I10	T	200X	Virtual Temperature	
J00	O	150	150MB Height	CM
J10	T	150	150MB Temperature	Deg C
J10	T	150X	Virtual Temperature	
K00	O	100	100MB Height	CM
K10	T	100	100MB Temperature	Deg C
K10	T	100X	Virtual Temperature	Deg C
L00	O	50	50MB Height	CM
L10	T	50	50MB Temperature	Deg C

L10	T	50X	Virtual Temperature	
M00	O	30	30MB Height	CM
M10	T	30	30MB Temperature	Deg C
N00	O	10	10MB Height	CM
N10	T	10	10MB Temperature	Deg C
P00	TS	100	Sea Temp. 100Ft Deep	Deg C
P01	TS	200	Sea Temp. 200Ft Deep	Deg C
P02	TS	300	Sea Temp. 300Ft Deep	Deg C
P03	TS	400	Sea Temp. 400Ft Deep	Deg C
P04	TS	600	Sea Temp. 600Ft Deep	Deg C
P05	FS	ASIA	Surface Pressure of S.E. Asia	MB
P05	TS	800	Sea Temperature 800ft Deep	Deg C
P06	TS	1200	Sea Temperature 1200ft Deep	Deg C
P07	GM2		Sea Temp Diff. (0*+200ft)-(0*+300ft)	C/100ft
P08	CM1		2nd Temp Dif 0*+(0*+(0*+200)-2(0*+100)	C/100ft2
P10	GT		Thermocline gradient	C/100ft
P11	SST	ANOM	Sea Surface Temperature Anomalies	Dec C
P12+	SST	AN05	SST 5 Day Anomaly	Deg C
P13+	T	SEA 5	SST 5 Day Mean	Deg C
P14	G00		Sea Temp. Diff. Sfc-200ft	Deg C/100ft2
P15	G02		Sea Temp. Diff. 200-400ft	Deg C/100ft2
P16	G04		Sea Temp. Diff. 400-600ft	Deg C/100ft2
P17	G06		Sea Temp. Diff. 600-800ft	Deg C/100ft2
P18	G08		Sea Temp. Diff. 800-1000ft	Deg C/100ft2
P19	G10		Sea Temp. Diff. 1000-1200ft	Deg C/100ft2
P20	MT		Thermocline magnitude	Deg C
P25	T02		Sea Temp. 200ft Deep	Deg C
P26	T04		Sea Temp. 400ft Deep	Deg C
P27	T06		Sea Temp. 600ft Deep	Deg C
P28	T08		Sea Temp. 800ft Deep	Deg C
P29	T10		Sea Temp. 1000ft Deep	Deg C
P30	TR		Gradient of Transients	Deg C
P30	T12		Sea Temp. 1200ft Deep	Deg C
P31	TT		Thermocline Tendency	NO
P31	GMO		Sea Temp. Diff. 0*-(D*+100ft)	Deg C/100ft
P32	FT		Thermocline Fluctuations	FT
P32	TMO		Sea Temp at 0*	Deg C
P34	TS	THM	Temp at top of Thermocline	Deg C
P35	TR	MAGOA	Magnitude of Transients Day	NO
P36	TR	MAGNT	Magnitude of Transients Night	NO
P37	TM1		Sea Temp at 0* + 100ft	Deg C
P38	TM2		Sea Temp at 0X + 200ft	Deg C
P39	GMA		Sea Temp Diff. (0*-100ft)-0*	Dec C/100ft
P40	GM1		Sea Temp Diff. (0*+100ft)-(0*+200ft)	Deg C/100ft
P50	CG	TSEA	Ocean Fronts	NO
P51	C	SD6	600 depth Excess	
P56	TS	NF	North Atlantic Sea Surface Temp.	Deg C
P66	TS	GS	Gulf Stream Area Sea Surface Temp.	Deg C
R00	O	925	925MB Height	CM
R10	T	925	925MB Temperature	Deg C
R10	T	925X	Virtual Temperature	
R50	TP	925	925MB Dew Point	Deg C
T00	O	250	250MB Height	CM
T10	T	250	250MB Temperature	Deg C
T10	T	250X	Virtual Temperature	Deg C

X00	COVERAGE	Upper Air Radiosonde Coverage	OBS
X01	SIGMA 1	Stability 1000-775MB Layer	M E2/sec
X03	SIGMA 3	Stability 800-450MB Layer	M E2/sec
X04	SIGMA 4	Stability 450-350MB Layer	M E2/sec
X05	SIGMA 5	Stability 350-275MB Layer	M E2/sec
X06	SIGMA 6	Stability 275-225MB Layer	M E2/sec
X07	SIGMA 7	Stability 225-175MB Layer	M E2/sec
X08	SIGMA 8	Stability 175-100MB Layer	M E2/sec
Y01	F 5-10	Thickness 1000-500MB	CM
Y05	SD5-10	Thickness Small Scale Disturbance	CM
Y06	SR5-10	Thickness Long Wave Pattern	CM
Y07	SL5-10	Thickness Large Scale Pattern	CM
Y33	CL	Clouds	10ths
Z01	TROP HT	Tropopause Height	CM
Z02	FRZLVL	Freezing Level	CM
Z10	GGTHETA	Frontal Analysis or Forecast	C/100KM2
Z12	N CLOUDS	Total Cloud Cover	8ths
Z13	F TER	Fog	NO
Z21	SHOWERS	Convective Portion of Precip	50 CM

#### BIG FIELDS

A01S	P NVA	Sfc Pressure NEDN Format	MB
A29S	U NVA	U Component Marine Wind GB NEDN FMT	CM/S
A29S	UMAR	U Component Marine Wind GB	CM/sec
A30*	SV NVA	V Component Marine Wind GB	CM/sec
A30S	VMAR	V Component Marine Wind GB	CM/sec
A30*	VMAR	V Component Marine Wind GB	CM/sec
A40*	P SFCM	Global Surface Pressure	MB
A41*	USFCM	Global E/W Sfc Wind U Component	CM/sec
A42*	V SFCM	Global N/S Wind V Component	CM/sec
A43*	CDSFCM	Global Band Isogon	Deg/10
A44*	FFSFCM	Global Band Isotach	100kts
B15*	SH GB	Ocean Swell Height Global Band (GB)	Ft
B16*	SD GB	Ocean Swell Direction GB	Deg/10
B17*	SP GB	Ocean Swell Period GB	seconds
B27*	CH GB	Combined Sea Height GB	ft
B28*	CD GB	Combined Sea Direction	Deg/10
B29*	CP GB	Combined Sea Period CB	seconds
B87*	WH GB	Wind Wave Height GB	ft
B88*	WD GB	Wind Wave Direction GB	Deg/10
B89*	WP GB	Wind Wave Period GB	seconds
D45*	GB T 850	850MB Temperature GB	Dec C
E41*	GB U 700	U Component 700 MB Wind GB	CM/sec
E42*	GB V 700	V Component 700 MB Wind GB	CM/sec
F45*	GB T 700	700MB Temperature GB	Dec C
G41*	GB U 400	U Component 400MB Wind GB	CM/sec
G42*	GB V 400	V Component 400MB Wind GB	CM/sec
H45*	GB T 300	300MB Temperature GB	Deg C
I41*	GB U 200	U Component 200MB Wind GB	CM/sec
I42*	GB V 200	V Component 200MB Wind GB	CM/sec
T41*	GB U 250	U Component 250MB Wind GB	CM/sec
T42*	GB V 250	V Component 250MB Wind GB	CM/sec

# SOUTHERN HEMISPHERE FIELDS

A01-	PS	Surface Pressure Southern Hem. (SH)	MB
A12-	E AIR	Surface Vapor Pressure SH	MB
A29-	UMAR	Marine Wind U Component SH	CM/sec
A30-	VMAR	Marine Wind V Component SH	CM/sec
B10-	TS SH	Sea Sfc Temperature SH	Deg C
C00-	O 1000	1000MB Height SH	MB
C10-	T 1000	1000MB Temperature SH	Deg C
C50-	TP1000	1000MB Dew Point Depression SH	Deg C
D00-	O 850	850MB Height	CM
D10-	T 850	850MB Temperature SH	Deg C
D50-	TP 850	850MB Dew Point Depression SH	Deg C
E00-	O 700	700MB Height SH	CM
E10-	T 700	700MB Temperature SH	Deg C
E50-	TP 700	700MB Dew Point Depression SH	Deg C
F00-	O 500	500MB Height SH	CM
F10-	T 500	500MB Temperature SH	Deg C
F50-	TP 500	500MB Dew Point Depression SH	Deg C
G00-	O 400	400MB Height SH	CM
G10-	T 400	400MB Temperature SH	Deg C
G50-	TP 400	400MB Dew Point Depression SH	Deg C
H00-	O 300	300MB Height SH	CM
H10-	T 300	300MB Temperature SH	Deg C
I00-	O 200	200MB Height SH	CM
H50-	TP 300	300MB Dew Point Depression SH	Deg C
I10-	T 200	200MB Temperature SH	Deg C
J00-	O 150	150MB Height SH	CM
J10-	T 150	150MB Temperature SH	Deg C
K00-	O 100	100MB Height SH	CM
K10-	T 100	100MB Temperature SH	Deg C
P11-	TS SHA	Sea Surface Temp. Anomoly SH	Deg C
R00-	O 925	925MB Height SH	CM
R10-	T 925	925MB Temperature SH	Deg C
T00-	O 250	250MB Height SH	CM
T10-	T 250	250MB Temperature SH	Deg C
O* = Potential Mixed Layer Depth			

## ABSTRACT:

In February 1981 the Fleet Numerical Oceanographic Center began to transfer this file to the NCDC as a back up to their digital archives. Since July 1981, the NCDC has been able to process orders from this file for non-U.S. Navy requests.

This file was generated on a CDC-6500, and intended for internal use at the Fleet Numerical Oceanographic Center. Use of this data file may be cumbersome on machines with architecture different from the CDC. However, NEDN Format Documentation will be furnished with each order from this file. The documentation provides information on the unpacking and descaling of the data portion of Fleet Numerical Oceanographic Center binary fields on non-FNOC (CDC) computers that operate with binary arithmetic.

This file is available for purchase from the NCDC.

FILE TAG: FA00224.

FILE NAME: HAWAII-TAHITI NORPAX (TD-9936).

TIME PERIOD: January 1, 1973 through December 31, 1980.

GEOGRAPHIC COVERAGE: Hawaii - Tahiti.

FILE SIZE: One magnetic tape; 9-track, odd parity, 1600bpi, EBCDIC mode, unlabeled. Copies of these data are available on magnetic tape, (EBCDIC or ASCII mode) and other computer media.

FORMAT: 81 characters per record, 100 records per block.

FILE STRUCTURE: Data are sorted on this magnetic tape by header cards which describe the source of data and then data cards containing the meteorological data.

CONTENTS: The major parameters that make up this file are hourly;  
1. Line Islands; wind direction (degrees), wind speed (mph), precipitation (in.), temperature (Deg. C), relative humidity (%), station pressure (MB), insolation (KWH), sea surface temperature (Deg. C), and sea level data (mm),  
2. Cruise ship; total cloud amount (oktas), wind direction (degrees to 10ths), wind speed (knots), visibility (nautical miles), present weather (type), past weather (type), sea level pressure (MB), dry bulb and wet bulb temperature (Deg. C), wave and swell height (1/2 meters), and period (seconds).

ABSTRACT: The source of data in this file was from the North Pacific Shuttle Experiment (NORPAX). These meteorological data were observed and recorded by land stations in the Line Islands and cruise ships traversing the ocean between Hawaii and Tahiti. There are no known related files.

This file is available for purchase from the NCDC.



FILE TAG: FA00230.

FILE NAME: NORTH ATLANTIC ATLAS CONTOURS-VOLUME 1 (TD-9937).

TIME PERIOD: January 1850 through December 1970.

GEOGRAPHIC COVERAGE: North Atlantic Ocean Basin (10S to 75N; 120W to 50E).

FILE SIZE: 27 magnetic tapes; 9-track, odd parity, 1600 bpi, ASCII mode, labeled. Copies of these data are available on magnetic tape (EBCDIC or ASCII mode).

FORMAT: 33 characters per record, 100 records per block.

FILE STRUCTURE: One contour parameter is on one reel of magnetic tape. The X and Y coordinates of the contours and centers make up this file.

CONTENTS: The major parameters that make up this file are monthly means and frequencies exceeding cut-off values of air and sea surface temperatures (Deg. C), dew-point temperature (Deg. C), relative humidity (%), wind speed (kts), visibility (nautical miles), precipitation (occurrence), clouds (10ths), wave heights (meters), sea level pressure (MB), and Tropical Cyclone occurrence and mean 12-hour movement.

ABSTRACT: The primary sources of data utilized to produce this file were the Marine Surface Observation (TD-11XX) files and the Marine Atlas (TD-9760) file. These data were quality controlled; by computer check for internal consistency and then duplicate observations were eliminated; a manual edit on extreme values, and various analyses procedures. A related file is the U.S. Navy Marine Climatic Atlas of the World.

This file is available for purchase from the NCDC.

FILE TAG: FA00435.

FILE NAME: SEA ICE DATA BASE (TD-9938).

TIME PERIOD: Antarctic - January 1, 1973 through December 31, 1982;  
Arctic - January 1, 1972 through December 31, 1982  
(updated periodically).

GEOGRAPHIC COVERAGE: Antarctic - 50 degrees South to the Pole; Arctic East -  
90 degrees West to 90 degrees East, 45 degrees North to  
the Pole; Arctic West - 90 degrees East to 90 degrees  
West, 75 degrees North to the Pole.

FILE SIZE: 3 magnetic tapes; 9-track, odd parity, 6250 bpi, ASCII  
mode, labeled. Copies of these data are available on  
magnetic tape (EBCDIC or ASCII mode) and other computer  
media.

FORMAT: 80 characters per record, 50 records per block.

FILE STRUCTURE: These magnetic tapes are multifile and contain Header  
Files and Chart Data Files. The Header File contains  
coded and plain language information relevant to sets of  
charts or the entire tape. The Chart Data File consists  
of a Header Record (chart identification information),  
Grid Line Record (grid line identification information),  
and Data Group Records (sea ice information - each  
record refers to one grid point. Each of the areas  
listed under Geographic Coverage is on one magnetic  
tape.

CONTENTS: The major parameters that are used in this file are;

1. Total ice concentration,
2. Partial concentration - thickest ice,
3. Partial concentration - 2nd thickest ice,
4. Partial concentration - 3rd thickest ice,
5. Stage of development - thickest ice,
6. Stage of development - 2nd thickest ice,
7. Stage of development - 3rd thickest ice,
8. Form of ice - thickest ice,
9. Form of ice - 2nd thickest ice,
10. Form of ice - 3rd thickest ice,
11. Predominant form of ice,
12. Secondary form of ice.

ABSTRACT: An important new Sea Ice Data Base has been created at  
the NCDC. These data are digitized from weekly charts  
prepared at the NOAA/NAVY Joint Polar Ice Center (JTC)  
and converted into a digital format (SIGRID) prescribed  
by the World Meteorological Organization.

Since the arrival of high-resolution satellite imagery,  
it has been possible to map accurately sea ice in both  
polar regions. Weekly analyses have been prepared and

published by the JTC since 1972. A number of other ice data sets exist, but the JTC charts appear to have the most beneficial combination of length of record along with spatial and temporal resolution, at least from the standpoint of creating a digital data base to be used for climatological summaries.

The task of digitizing sea ice charts is straightforward. After a chart is mounted on the digitizing tablet and header information is entered into the keyboard terminal, digitizing begins. The operator follows the ice "contours" with a cross-hair cursor, and X-Y coordinate pairs are generated and recorded at a rate of five points per second. The digitizer program invokes a dialog which prompts the operator for all of the required input. This approach allows all the salient information on a chart to be saved. If grid point resolution requirements were to change, you could modify the gridding programs and rerun the raw contour data from the digitizer program with no loss of information. The contour digitization approach has a clear advantage over the more commonly used and more labor intensive method of reading values at each grid point.

Two constraints were imposed upon the chosen coordinate grid point system: 1) the grid point resolution must always be equal to or less than 15NM, 2) the quotient obtained by dividing 180 degrees by the longitudinal grid point spacing must be an integer. These constraints led to the choice of a latitudinal grid point spacing of .25 degrees over the entire map and a variable longitudinal spacing.

Knowing the locations of the required grid points allows the raw contour data to be transformed into an ice type and concentration at a grid point. Heuristically speaking, the gridding program goes through the master grid point table (MGT) and asks the question, "Is this point inside or outside of the contour?" If the point is inside, it receives an appropriate value for ice type and concentration. If outside, no action is taken. Since there are approximately 146,000 grid points covering the arctic region, this would be a lengthy procedure but for the fact that only small parts of the MGT need be accessed for each contour. This is true because the MGT is arranged as a direct access file whose record numbers are based on geographic location. The program then, only queries grid points whose locations are in the vicinity of those encompassed by the raw contour. This substantially reduces the number of computations and allows the gridding to proceed quickly. When this program is completed, the MGT contains a latitude, longitude, and an 18-digit grid point value which may identify ice, open water, or land.

Each of these grid point records is then written to another file which is sorted first by latitude (equator to pole) and then by longitude (west to east). The sorted file then becomes input to the final programs which produce the "SIGRID" format.

The grid points are identified by earth coordinates and have a resolution of 15NM or better. There are no known data quality problems in this file.

This file is available for purchase from the NCDC.

FILE TAG: FA00919.

FILE NAME: GFDL ATMOSPHERIC CIRCULATION TAPE LIBRARY (TD-9942).

TIME PERIOD: May 1, 1958 through April 30, 1973.

GEOGRAPHIC COVERAGE: Global.

FILE SIZE: 32 magnetic tapes; 9-track, odd parity, 6250bpi, ASCII mode, unlabeled. Copies of these statistical data are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: 80 characters per record, 50 records per block.

FILE STRUCTURE: Each magnetic tape is multifile containing 2 to 54 files of statistical data for different periods of record.

CONTENTS: The major variables that make up this file for the surface/1000-millibar and 950-, 900-, 850-, 700-, 500-, 400-, 300-, 200-, 100-, and 50-millibar constant pressure levels are;

1. Tapes 1-6 — Monthly, horizontal departure fields from 1963-1973 and mean conditions for the upper air during the 5-year period May 1958 through April 1963,
2. Tapes 7-21 — Monthly, horizontal departure fields from 1963-1973 and mean conditions for the upper air during the 10-year period May 1963 through April 1973,
3. Tapes 22-23 — Monthly, horizontal departure fields from 1963-1973 and mean conditions for the surface/1000-millibar during the 15-year period May 1958 - April 1973,
4. Tapes 24-25 — Monthly, zonal-mean cross sections for individual months during the 15-year period May 1958 - April 1973,
5. Tapes 26-29 — Means and standard deviations (1963-1973); horizontal fields for the upper air,
6. Tape 30 — Means and standard deviations (1963-1973) for the surface/1000-millibar for 23 parameters,
7. Tape 31 — Cross sections 1963-1973 means and standard deviations,
8. Tape 32 — Mountain topography and mountain tag fields.

ABSTRACT: Global atmospheric circulation statistics in this file were used for NOAA Professional Paper No. 14 by Professor Abraham H. Oort of the NOAA Geophysical Fluid Dynamics Laboratory, Princeton, New Jersey. The sources of data in this file were numerous. Among these were the Massachusetts Institute of Technology Circulation Library, the National Climatic Data Center, the National Meteorological Center, the National Center for Atmospheric Research, the British Meteorological Office in Bracknell, England and the U.S. Air Force Environmental Technical Applications Center.

A collection of 15 years of global rawinsonde data and all available surface land and surface ship reports was obtained for analyses. All daily data were carefully checked for erroneous reports at several phases in the processing scheme. Monthly mean statistics were then computed for each station, and served as input for the objective analysis scheme. This scheme used the zonal average of the data as a first guess field. A variety of general circulation statistics was analyzed at 11 levels between the surface/1000-millibar and the 50-millibar surface for each month of the 15-year period as well as for the 10-year mean (1963-1973) period. Due to the sparsity of data, the Southern Hemisphere was not analyzed for the 1958-1963 period.

NOAA Professional Paper No. 14 "Global Atmospheric Circulation Statistics, 1958-1973 (April 1983)" is available for purchase from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. It contains detailed information on data reduction methods used and the reliability of various data utilized for reduction in this file.

A General Information pamphlet containing details on the fields (parameters) within each file and the magnetic tape number where these fields are filed is available from the NCDC.

This file is available for purchase from the NCDC.

FILE TAG: FA00916.

FILE NAME: THUNDERSTORM BEGINNING AND ENDING TIMES (TD-9945).

TIME PERIOD: January 1, 1948 through December 31, 1977.

GEOGRAPHIC COVERAGE: Selected stations, Contiguous United States.

FILE SIZE: One magnetic tape; 9-track, odd parity, 1600bpi, ASCII mode, unlabeled. Copies of these data are available on magnetic tape (EBCDIC or ASCII mode) and other computer media.

FORMAT: 42 characters per record, 100 records per block.

FILE STRUCTURE: Data are filed on the magnetic tape by WBAN station number, year, month, day. Each record contains up to three storms. If more than three storms occurred for a day, a second record was created. If one storm for the day, record positions 22-41 are blank; two storms for the day, record positions 32-41 are blank. When 9999 is in beginning and ending time field, it indicates an unknown time.

CONTENTS: The major parameters that make up this file are beginning and ending times (LST) of thunderstorms.

ABSTRACT: The data in this file were used to create the publication NATIONAL THUNDERSTORM FREQUENCIES FOR THE CONTIGUOUS UNITED STATES. This file consists of thunderstorm beginning and ending times in a 24-hour clock format for 450 stations for the general period January 1, 1948 through December 31, 1977. A number of the station's data begin prior to 1948 ensuring an adequate period of record for remote locations. Storm times were extracted from the original manuscript records of surface weather observations taken by selected National Weather Service, Federal Aviation Administration, U. S. Air Force, and U. S. Navy stations, coded, keyed to magnetic tape, and quality controlled. For locations with data taken during the 1942-1945 period, the times were converted from War Time to Local Standard Time. Quality control included assuring, 1) a 15-minute minimum duration of thunder (National Weather Service standard), 2) storm beginning times occur before ending times, and 3) record with storm occurrences over the midnight time period, or with multiple storm occurrences, are properly coded.

There are no known related files.

This file is available for purchase from the NCDC.

FILE TAG: FA00298.

FILE NAME: MISCELLANEOUS DIGITAL DATA (TD-9999); DATSAV AND OL-A STATION FILES.

TIME PERIOD: DATSAV - January 1, 1973 through the present; OL-A STATION - variable through the present (updated monthly).

GEOGRAPHIC COVERAGE: Global.

FILE SIZE: 1500 magnetic tapes; 9-track, odd parity, 1600 bpi (1973-1981) and 6250 bpi (1982 to date), binary. Copies of these data selected by WMO station number are available on magnetic tape and other computer media.

FORMAT: Variable length records within fixed length blocks. Maximum record length is 500 bytes and maximum block length is 9990 bytes. NCDC can output on magnetic tape;

1. ASCII mode, variable length records, labeled or unlabeled,
2. ASCII mode, fixed length records; 65 characters per record, 50 records per block; or 495 characters per record, 4 records per block; or 80 characters per record, 10 records per block,
3. EBCDIC mode, variable length records, unlabeled,
4. EBCDIC mode, fixed length records; 65 characters per record, 50 records per block; or 495 characters per record, 4 records per block; or 80 characters per record, 10 records per block, unlabeled.

FILE STRUCTURE: Data for stations in the DATSAV file are merged on annual magnetic tapes from 1973 through the latest calendar year and monthly magnetic tapes thereafter. Data for stations in the OL-A STATION file are merged on one to three reels of magnetic tape for a period of record, e.g., January 1, 1945 through December 31, 1983. The stations in the OL-A STATION file are primarily current and historical worldwide U.S. Military locations. Data in both files are sorted on each magnetic tape by WMO station number and more than one station's data are usually filed on the same magnetic tape.

CONTENTS: The major parameters that make up this file are surface sea-level and station pressure (MB to 10ths), wind direction (degrees), wind speed (knots), temperature and dewpoint temperature depression (Deg. C to 10ths), past and present weather (coded, type), horizontal visibility (coded), cloud layers (coded), total cloud cover and total opaque cloud cover (oktas).



ABSTRACT:

The primary source of global data for this file is that received via radio teletype transmission (RATT) and continuous wave (CW) communication by the U.S. Air Force Global Weather Center (GWC). These data are decoded at the GWC; validated, resorted, and converted to the DATSAV format at the U.S. Air Force Environmental Technical Applications Center; and further quality controlled and merged into these files by the U.S. Air Force, Air Weather Service OL-A in Asheville, North Carolina.

Through liaison with OL-A, and utilizing their station file listings and microfiche inventories, the NCDC can determine if a particular WMO station's data are located in this file.

This file is available for purchase from the NCDC.



FILE TAG: FS00031.

FILE NAME: ADVANCED VERY HIGH RESOLUTION RADIOMETER (AVHRR)  
(TIROS-N/NOAA series Polar Orbiters).

TIME PERIOD: 1979 through the present (updated daily).

GEOGRAPHIC COVERAGE: Twice daily global at 4 km resolution; Eastern half North America, Alaska, Western Canada, and selected areas in Europe, Africa, and Asia at 1 km resolution.

FILE SIZE: As of April 1, 1986; 45,000 4 km resolution data sets, and 12,000 1 km resolution data sets, and supplementary 1 km images.

FORMAT: Digital-users may specify 1, 2, and 5 channel data for selected area(s) and/or time(s), and may specify that the data be furnished on 9-track magnetic tape at 1600 or 6250 bpi.

Image-users may obtain 10 x 10 inch or enlarged photographic prints, negatives, slides, or positive transparencies of 1 km resolution scenes, or polar stereographic, or mercator mosaics of 4 km scenes.

FILE STRUCTURE: The AVHRR archive file consists of a series of AVHRR data sets. Each AVHRR data set contains a sequence of AVHRR scans. In the case of 4 km data, each data set contains the scans for one full earth orbit (101 minutes of data), and in the case of 1 km data, up to 12 minutes of data). 4 km data are packed two scans per record, 1 km data are two records per scan. Each scan contains documentation and data values (see CONTENTS). Data and documentation information are binary.

CONTENTS: The information contained in each data set includes; satellite ID and orbit number, date and time, earth location references, sensor calibration coefficients, solar zenith angles, and 2048 (@ 1 km or 409 @ 4KM) sets of data values per scan. Each set consists of five 10 bit binary data values, which may be converted to albedoes or radiances using the calibration coefficients. The AVHRR data are used operationally by NESDIS to produce sea surface temperature, heat budget, and other products which are also available to users in digital or image form.

ABSTRACT: The AVHRR instrument is aboard the TIROS-N/NOAA 6/7/8/9 series of Polar Orbiting environmental satellites. The AVHRR is as a five channel scanning radiometer, with channels in the visible, near-IR and IR portions of the spectrum. The sensor produces 1 km data, which are also sampled down to a 4 km resolution, and recorded on board for readout on command. 1 km resolution data are

transmitted continuously and up to 10 minutes per orbit can be recorded for readout on command.

This file is available for purchase from the National Ocean and Atmospheric Administration, NESDIS, NCDC, World Weather Building, Washington, DC 20233.

FILE TAG: FS00205.

FILE NAME: ALTIMETER (ALT)  
(NASA SEASAT).

TIME PERIOD: July through October 1978.

GEOGRAPHIC COVERAGE: Global in narrow tracks to 72 degrees North and South. ALT is a nadir looking instrument which makes measurements every 18 km along the subpoint track, and ground resolution over water of 1.6 to 2.0 km. Equatorial spacing between tracks ranges from 65 km to 900 km.

FILE SIZE: 1,131 magnetic tapes.

FORMAT: Digital-users may specify areas and time period of interest, and may specify the data be furnished on 9-track magnetic tape at 1600 or 6250 bpi.

FILE STRUCTURE: Each magnetic tape contains either six days of global Geophysical Files or three days of global Sensor Files.

CONTENTS: The ALT is an active radar altimeter operating at a frequency of 13.5 Ghz. ALT Sensor Files contain earth location and date-time tags, altimeter satellite height measurements, and instrument correction information. Geophysical Files include earth location and time tags, altimeter satellite height measurements, significant wave height, geoid height, correction information, and correlative data such as surface atmospheric pressure, temperature, humidity, and wind. Accuracy goals for significant wave height were 0.5 meters or 10%, whichever was greater, and 10 cm for spacecraft height above the ocean surface.

ABSTRACT: SEASAT was an experimental NASA satellite with instruments designed to collect data for oceanographic applications. The Altimeter was an active radar altimeter operated at a frequency of 13.5 Ghz. Sensor (data) and Geophysical (derived parameters) files are available.

This file is available for purchase from the National Oceanic and Atmospheric Administration, NESDIS, NCDC, World Weather Building, Washington, DC 20233.

FILE TAG: FS00208.

FILE NAME: HEAT BUDGET (TIROS-N/NOAA Polar Orbiters).

TIME PERIOD: 1974 through the present (updated daily).

GEOGRAPHIC COVERAGE: Global on a 2.5 latitude/longitude grid.

FILE SIZE: As of April 1, 1986; 130 magnetic tapes.

FORMAT: Digital-users may specify time periods of interest and that copies of the Heat Budget data be furnished on 9-track magnetic tape at 1600 or 6250 bpi.

FILE STRUCTURE: The Heat Budget file consists of a series of daily Heat Budget data sets grouped three months per magnetic tape. Each daily Heat Budget set contains a set of files of heat budget parameters (see CONTENTS). The data are in binary form.

CONTENTS: The Heat Budget parameters are daytime and nighttime longwave outgoing flux, available incoming energy, and absorbed solar radiation, all in watts per square meter. For each parameter, there are Northern and Southern Hemisphere polar stereographic projection arrays and a mercator projection array.

ABSTRACT: The Heat Budget product is produced from AVHRR (Advanced Very High Resolution Radiometer) data collected by the TIROS-N/NOAA 6/7/8/9 series of polar orbiting environmental satellites.

This file is available for purchase from the National Oceanic and Atmospheric Administration, NESDIS, NCDC, World Weather Building, Washington, DC 20233.

FILE TAG: FS00190.

FILE NAME: MAPPED GLOBAL VIS/IR RADIOMETER DATA  
(ESSA-TOS Series Advanced Vidicon Camera System-AVCS)  
(ITOS-Early NOAA Series Scanning Radiometer-SR)  
(TIROS-N/NOAA Series Advanced Very High Resolution Radiometer-AVHRR).

TIME PERIOD: 1967 through the present (updated daily).

GEOGRAPHIC COVERAGE: Global twice daily, 50 km to 25 km resolution, mapped onto Northern and Southern Hemisphere polar stereographic and mercator projections.

FILE SIZE: 25,000 film negatives; 4,600 magnetic tapes.

FORMAT: Digital-users may specify areas and time periods of interest, and may specify that the data be furnished on 9-track magnetic tape at 1600 or 6250 bpi. These data are also available as photographic images.

FILE STRUCTURE: The precise structure of the file has varied over the years of its collection. For each day, there exists a daytime visible data file, and from 1973 onward, daytime and nighttime IR data files.

CONTENTS: The Mapped Global Radiometer data are mapped into arrays on Northern and Southern Hemisphere polar stereographic grids, and mercator grids, of varying size. Each element contains a visible and/or IR data value with a zenith angle or latitude correction applied (for cosmetic purposes; the operational use of these data were for production of imagery). The contents have varied over the years as follows;

1. 1966-1972, ESSA-TOS AVCS 512 x 512 grid VIS only,
2. 1972-1978, ITOS-Early NOAA SR 2048 x 2048 and 1024 x 1024 VIS and IR,
3. 1979 through the present, TIROS-N/NOAA AVHRR 1024 x 1024 VIS and IR.

ABSTRACT: The Mapped (polar stereographic and mercator) Global VIS/IR Radiometer data set is the longest essentially continuous and relatively homogeneous global product that has been produced from data collected by environmental satellites. The instruments were an early vidicon camera system (visible data only) followed by an evolving series of scanning radiometers, including the VHRR and AVHRR instruments.

This file is available for purchase from the National Oceanic and Atmospheric Administration, NESDIS, NCDC, World Weather Building, Washington, DC 20233.

FILE TAG: FS00187.

FILE NAME: SCANNING MULTICHANNEL MICROWAVE RADIOMETER (SMMR)  
(NASA SEASAT).

TIME PERIOD: July through October 1978.

GEOGRAPHIC COVERAGE: Global at 25 to 144 km resolution each 36 hours. Each pass is a swath 940 km wide to the right of the subpoint track.

FILE SIZE: 417 magnetic tapes.

FORMAT: Digital—users may specify areas and time period of interest, and may specify that the data be furnished on 9-track magnetic tape at 1600 or 6250 bpi.

FILE STRUCTURE: Each magnetic tape contains data from one or more passes. Data from each pass includes a Sensor File and a Geophysical File (six hours of global Geophysical Files per tape).

CONTENTS: Sensor Files contain earth location and date-time tags, scanning geometry, calibration information, and data values for each of the SMMR channels. Geophysical Files contain geophysical parameters computed from sensor data on a 150 km grid mesh. Each grid cell includes its earth location and sea surface temperature, surface wind stress, atmospheric water vapor and liquid water content, and precipitation rate.

ABSTRACT: SEASAT was an experimental NASA satellite with instruments designed to collect data for oceanographic applications. The Scanning Multichannel Microwave Radiometer was a passive scanning radiometer with five channels for microwave frequencies of 6.6, 10.69, 18.0, 22.35, and 27.0 Ghz. Sensor (data) and Geophysical (derived parameter) files are available.

This file is available for purchase from the National Oceanic and Atmospheric Administration, NESDIS, NCDC, World Weather Building, Washington, DC 20233.



FILE TAG: FS00187.

FILE NAME: SCATTEROMETER (SASS-SEASAT A SCATTEROMETER SYSTEM)  
(NASA-SEASAT).

TIME PERIOD: July through December 1978.

GEOGRAPHIC COVERAGE: Global at 50 km resolution each 36 hours, with a swath width of 1000 km.

FILE SIZE: 639 magnetic tapes.

FORMAT: Digital-users may specify areas and time period of interest, and may specify that the data be furnished on 9-track magnetic tape at 1600 or 6250 bpi.

FILE STRUCTURE: The magnetic tapes contain Sensor and/or Geophysical Files, either six hours of continuous Sensor and Geophysical data, 24 hours of continuous Geophysical data, or 48 hours of continuous basic Geophysical data per tape.

CONTENTS: SASS Sensor Files contain earth location and date-time tags, instrument calibration information, spacecraft orbit and altitude, and basic sensor data (backscatter coefficients). SASS Geophysical Files contain earth location and time tags, surface wind stress, surface wind vectors (with a 180 degree directional ambiguity), and fully corrected backscatter coefficients.

ABSTRACT: SEASAT was an experimental NASA satellite with instruments designed to collect data for oceanographic applications. The Scatterometer was an active backscatter radiometer operating at a frequency of 13.9 Ghz. Sensor (data) and Geophysical (derived parameters) files are available.

This file is available for purchase from the National Oceanic and Atmospheric Administration, NESDIS, NCDC, World Weather Building, Washington, DC 20233.

FILE TAG: FS00183.

FILE NAME: SEA SURFACE TEMPERATURE (SST)  
(TIROS-N/NOAA series Polar Orbiters).

TIME PERIOD: 1979 through the present (updated weekly/monthly).

GEOGRAPHIC COVERAGE: 1) Observations; Global ocean areas at 50 km resolution,  
2) Gridded Fields; Global ocean areas at 1 degree and 5 degree latitude/longitude meshes, coverage of three selected regions on a 0.5 degree mesh. Monthly mean gridded fields are global on a 2.5 degree mesh.

FILE SIZE: As of April 1, 1986; 1) Observations; 375 magnetic tapes and 2) Gridded Fields; 270 magnetic tapes.

FORMAT: Digital-users may specify areas and time period of interest for Observations, or time periods for Gridded Fields, and that the data be furnished on 9-track magnetic tape at 1600 or 6250 bpi.

FILE STRUCTURE: All SST magnetic tapes contain a Header File identifying the type and date range of data on the tape, followed by a series of data files, either Observations or Gridded Fields. Observation files contain 7 days of SST observations organized into 5 degree latitude/longitude blocks and 1 degree sub-blocks. Gridded Field files contain a record for each latitude band, a series of grid elements circling the earth at a given latitude.

CONTENTS: Each observation includes a date-time tag, earth location, SST measurement, reliability flag, and other information. Each element of a Gridded Field includes a land/sea tag, an analyzed SST value (based on nearby observations and previous analysis), the number of observations used in computing the analyzed value, a reliability flag, a climatological normal value, and other information.

ABSTRACT: The SST products are produced from AVHRR (Advanced Very High Resolution Radiometer) and TOVS (TIROS Operational Vertical Sounder) data collected by the TIROS-N/NOAA 6/7/8/9 series of polar orbiting environmental satellites. TOVS data are used to calibrate AVHRR data for atmospheric effects. The model used to produce SST's makes use of the near-IR channel (channel 3) and the two IR channels (channels 4 and 5) of the AVHRR instrument.

This file is available for purchase from the National Oceanic and Atmospheric Administration, NESDIS, NCDC, World Weather Building, Washington, DC 20233.

FILE TAG: FS00210.

FILE NAME: SYNTHETIC APERTURE RADAR (SAR) (NASA SEASAT).

TIME PERIOD: July through October 1978.

GEOGRAPHIC COVERAGE: North and Central America, Western Europe, Iceland, and Greenland in 100km wide swaths, with a ground resolution of approximately 25 meters.

FILE SIZE: Approximately 500 strips of optically correlated imagery, and 400 scenes of digitally processed imagery and corresponding digital tapes.

FORMAT: Image-Optically Correlated; Users may obtain prints or enlargements of sections of 70 mm filmstrips of areas 25 km wide by 400 to 4000 km long with a resolution of 4 meters.

Image-Digitally Processed; Users may obtain prints or enlargements of 10 by 10 inch film negatives of 100 km by 100 km scenes with a resolution of 25 meters.

Digital-Digitally Processed; Users may request copies of magnetic tapes containing one 100 km by 100 km scene corresponding to digitally processed imagery. Users may also specify that the data be furnished on 9-track magnetic tape at 1600 or 6250 bpi.

FILE STRUCTURE: Each magnetic tape contains one 100 km by 100 km scene as a single file.

CONTENTS: The SAR is an active imaging radar system operating at a frequency of 1.37 Ghz. Radar responses are converted to a depiction in image form of surface roughness. Digital scenes contain 5500 lines of 6144 pixels each, in which each pixel is an 8 bit value.

ABSTRACT: SEASAT was an experimental NASA satellite with instruments designed to collect data for oceanographic applications. The Synthetic Aperture Radar provided high resolution depiction of ocean and land surface topography. Digital and hard copy radar images are available.

This file is available for purchase from the National Oceanic and Atmospheric Administration, NESDIS, NCDC, World Weather Building, Washington, DC 20233.

FILE TAG: FS00174.

FILE NAME: TIROS OPERATIONAL VERTICAL SOUNDER (TOVS)  
(TIROS-N/NOAA series Polar Orbiters).

TIME PERIOD: 1979 through the present (updated daily).

GEOGRAPHIC COVERAGE: Twice daily global.

FILE SIZE: As of April 1, 1986; 60,000 data sets for each of the three TOVS instruments.

FORMAT: TOVS data are available in digital form only. Users may specify data from selected channels from selected TOVS instruments (see CONTENTS) for specified area(s) and/or time(s). Users may also specify that the data be furnished on 9-track magnetic tape at 1600 or 6250 bpi.

FILE STRUCTURE: The TOVS archive file consists of a series of TOVS data sets. Each TOVS data set contains data from one of the three TOVS instruments in the form of a sequence of earth scans. Each data set contains the scans for that instrument for one full earth orbit (101 minutes of data). The data within each data set are packed one scan per record. Each scan contains documentation and data values. Data and documentation information are binary.

CONTENTS: The information contained in each HIRS, MSU, SSU data set includes; satellite ID and orbit number, date and time, earth location references, sensor calibration coefficients height and local zenith angles, and sets of binary data values. HIRS data sets contain 56 data values per channel per scan, each of 13 bits precision; MSU 11 values per channel per scan, each of 12 bits; and SSU 8 values per channel per scan, each of 12 bits. Nadir ground resolution for HIRS data is 17.4 km, for MSU 109.3 km, and for SSU 147.3 km. The data values may be converted to radiances using the calibration coefficients.

ABSTRACT: The TOVS instruments are aboard the TIROS-N/NOAA 6/7/8/9 series of polar orbiting environmental satellites. The TOVS system includes three instruments. The High Resolution Infra-Red Sounder (HIRS) is a twenty channel scanning radiometer with channels in the 15 micrometer and 4 micrometer regions. The Microwave Sounding Unit (MSU) is a passive scanning microwave spectrometer with four channels in the 5.5 micrometer oxygen region (corresponding to frequencies from 50 Ghz to 58 Ghz). The Stratospheric Sounding Unit (SSU) is a step scanner for infra-red spectrometer with three channels in the 15 micrometer carbon dioxide region. The data from the HIRS, MSU, and SSU are recorded on board the satellite

for readout on command. TOVS data are used operationally by NESDIS to produce vertical profiles of temperature and moisture, and to derive other atmospheric parameters which are also available to users.

This file is available for purchase from the National Oceanic and Atmospheric Administration, NESDIS, NCDC, World Weather Building, Washington, DC 20233.

FILE TAG: FS00171.

FILE NAME: TOVS (TIROS OPERATIONAL VERTICAL SOUNDER) SOUNDING  
PRODUCT (TIROS-N/NOAA series Polar Orbiters).

TIME PERIOD: 1979 through the present (updated weekly).

GEOGRAPHIC COVERAGE: Global at a nominal resolution of 250 km.

FILE SIZE: As of April 1, 1986; 400 magnetic tapes, each containing  
one week's of Sounding Product sets.

FORMAT: Users may specify the range of dates/times and latitudes  
and longitudes of an area of interest; and obtain all of  
the Sounding Product sets that meet the user's criteria.  
Users may also specify that the data be provided on  
9-track magnetic tape at 1600 or 6250 bpi.

FILE STRUCTURE: The TOVS Sounding Product file is divided into weekly  
data sets. Each weekly data set consists of a  
Housekeeping file and a series of Data files. The  
Housekeeping file contains directory information, one  
entry per Data file, identifying the time period covered  
by each Data file. Each Data file contains a group of  
sounding product sets (see CONTENTS). All information  
is in binary format. Users specifying a particular area  
and/or time of interest receive magnetic tapes  
containing sounding product sets selected accordingly.

CONTENTS: Each sounding product set includes; date, time, latitude  
and longitude, solar zenith angle, land/sea indicator,  
surface temperature, estimated surface pressure, quality  
information, pressure bounds and layer mean temperature  
for 15 vertical layers in the atmosphere, pressure  
bounds and layer mean precipitable water for three  
layers, tropopause pressure and temperature, total ozone  
amount, cloud cover percentage and cloud top pressure  
altitude, and equivalent block body temperatures for  
each of the channels of the three TOVS instruments.

ABSTRACT: The TOVS Sounding Product is produced operationally by  
NESDIS from TOVS (HIRS, MSU, and SSU) instruments aboard  
the TIROS-N/NOAA 6/7/8/9 series of polar orbiting  
environmental satellites. Approximately 10,000  
atmospheric soundings (vertical profiles of atmospheric  
parameters) are produced daily.

This file is available for purchase from the National  
Oceanic and Atmospheric Administration, NESDIS, NCDC,  
World Weather Building, Washington, DC 20233.

FILE TAG: FS00034.

FILE NAME: VERTICAL TEMPERATURE PROFILE RADIOMETER (VTPR)  
(Early NOAA Series - pre - TIROS - N).

TIME PERIOD: November 1972 through February 1979.

GEOGRAPHIC COVERAGE: Global over ocean areas; twice daily at nominally 60 km by 70 km resolution.

FILE SIZE: 1,194 magnetic tapes.

FORMAT: Digital-users may specify the area and time period of interest, and whether raw radiances, clear column radiances, and/or derived atmospheric soundings are desired. In addition, users may specify that the data be furnished on 9-track magnetic tape at 1600 or 6250 bpi. Users may also obtain printed listings of derived soundings.

FILE STRUCTURE: Each magnetic tape contains one week of VTPR data in three files (see CONTENTS); Raw Radiances, Clear Column Radiances, and Derived Soundings.

CONTENTS: The Raw Radiance file contains time and earth location tags, and calibrated radiances from each channel for all original scan spots. The Clear Column Radiance file contains time and earth location tags, and clear column radiances (computed from 8 x 8 arrays of original scan spot radiances) for each channel. The Derived Soundings file contains time and earth location tags, and temperature and humidity profiles for each set of clear column radiances.

ABSTRACT: The Vertical Temperature Profile Radiometer was aboard NOAA operational polar orbiting environmental satellites. The VTPR was an eight channel radiometer, with six channels in the carbon dioxide region (13 to 15 micrometers), a water vapor absorption channel (18.7 micrometers), and a water vapor window channel (12 micrometers). Raw radiance (data), clear column radiance (cloud-free data), and derived sounding (derived parameters) files are available.

This file is available for purchase from the National Oceanic and Atmospheric Administration, NESDIS, NCDC, World Weather Building, Washington, DC 20233.

FILE TAG: FS00172.

FILE NAME: VISIBLE & INFRA-RED SPIN SCAN RADIOMETER (VISSR)  
(GOES - Geostationary Operational Environmental Satellite).

TIME PERIOD: 1976 through the present (updated daily).

GEOGRAPHIC COVERAGE: North and South America, the Northern and Southern Atlantic and the Northeastern and Southeastern Pacific; nominally every thirty minutes, 24 hours per day. For coverage of severe weather, the VISSR data is obtained every three to five minutes for a small area containing the weather of interest.

FILE SIZE: As of April 1, 1986; 220,000 VISSR frames.

FORMAT: Digital-users may specify visible and/or IR data for selected area(s) and/or time(s), and may specify that the data be provided on 9-track magnetic tape at 1600 or 6250 bpi. In addition, grid point maps of calibrated IR temperatures for selected scenes may be requested.

Image-users may obtain 10 x 10 inch or enlarged photographic prints, negatives, or positive transparencies of selected VISSR frames.

FILE STRUCTURE: The VISSR archive file consists of a series of VISSR frames wherein each frame contains the visible and IR data from one complete view of the earth from one GOES satellite. Each frame consists of a series of records containing the visible and/or IR data from one East-West scan; the full earth view includes about 16,000 visible scan lines (each containing 16,000 data values) and about 1,800 IR scan lines (each containing 3,800 data values). Each scan contains documentation (see CONTENTS). Data and documentation information are binary.

CONTENTS: The VISSR/VAS is a scanning radiometer, with channels in the visible and IR (10 to 12 micrometer region for VISSR data) portions of the spectrum. The sensor produces 1 km visible data at a 6 bit precision and 8 km IR data at 8 bit precision. The documentation contained in the VISSR data includes earth location references, and sensor calibration information is available separately. All digital data are in binary form.

ABSTRACT: The VISSR instrument was aboard GOES 1/2/3; GOES 4/5/6 are equipped with the VAS, VISSR Atmospheric Sounder which routinely produces VISSR data. The VAS also produces multichannel IR data in a research mode; these data are also available in limited quantities. The geostationary platform permits half hourly views of the same field of view.



The VAS will become the operational mode on all GOES Satellites starting in September 1986. The VISSR data are used operationally by NESDIS to produce wind vectors derived from cloud motions; this product is also available to users.

This file is available for purchase from the National Oceanic and Atmospheric Administration, NESDIS, NCDC, World Weather Building, Washington, DC 20233.

FILE TAG: FS00196.

FILE NAME: VISSR CLOUD MOTION VECTORS (WINDS)  
(NOAA GOES Geostationary Satellites).

TIME PERIOD: 1974 through the present (updated monthly).

GEOGRAPHIC COVERAGE: An area approximately between 50 degrees North and South latitudes, from the Eastern Pacific across North and South America to the Western Atlantic, twice daily.

FILE SIZE: As of April 1, 1986; 125 magnetic tapes.

FORMAT: Digital-users may obtain copies of monthly 9-track magnetic tapes at 1600 or 6250 bpi.

FILE STRUCTURE: Each monthly magnetic tape contains a single file consisting of a series of records containing individual sets of cloud motion vector information.

CONTENTS: Each set of cloud motion vector information describes one measurement, and includes; a year-month-day-hour time tag, latitude and longitude, pressure altitude, measured or computed cloud motion (wind) speed and direction, an automated/manual indicator, and quality information.

ABSTRACT: The cloud motion vectors are derived from successive pairs of VISSR (Visible-IR Spin Scan Radiometer) images by both manual and automated techniques. This process is performed twice daily with the VISSR data from each of two GOES satellites.

This file is available for purchase from the National Oceanic and Atmospheric Administration, NESDIS, NCDC, World Weather Building, Washington, DC 20233.

FILE TAG: FA00033.

FILE NAME: A DUST CLIMATOLOGY OF THE WESTERN UNITED STATES.

TIME PERIOD: 1948-1977.

GEOGRAPHIC COVERAGE: United States; all states west of 95 degrees west longitude.

FILE SIZE: One publication, one microfiche.

FORMAT: Narrative information, analyzed charts, and statistical data.

FILE STRUCTURE: A stock of this publication is maintained by and available from the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555. The publication is also on microfiche and filed in the NCDC archives.

CONTENTS: Narrative information provided include Dust Storm Characteristics and Development, Weather Systems and Dust Storms, Data and Data Analysis. Statistical data presented for each station are;

1. Number of hours with visibility less than 7, 3, 1, and 5/8 mile(s),
2. Number of episodes with visibility less than 7 and 5/8 mile(s),
3. Duration (hours) per episode visibility less than 7 and 5/8 mile(s),
4. Probability (%) thunderstorm with visibility less than 7 and 5/8 mile(s),

The analyzed charts depict the following;

1. Geographical distribution of analyzed stations,
2. Annual average number of hours of dust episode visibility less than 7 miles,
3. Number of hours (1954) of dust episode visibility less than 7 miles,
4. Annual average number of hours of dust episode visibility less than 3 miles,
5. Annual average number of hours of dust episode visibility less than 1 mile,
6. Annual average number of hours of dust episode visibility less than 5/8 mile,
7. Annual number of dust episodes with visibility less than 7 miles,
8. Annual number of dust episodes with visibility less than 5/8 miles,
9. Average duration (hours) of dust episodes with visibility less than 7 miles,

10. Average duration (hours) of dust episodes with visibility less than 5/8 mile,
11. Average duration (hours) of the longest annual dust episode with visibility less than 5/8 mile,
12. Probability (%) of dust episodes with visibility less than 5/8 mile occurring during the primary season,
13. Primary season of dust episodes with visibility less than 5/8 mile,
14. Probability (%) of thunderstorm activity occurring with dust episode visibility less than 7 miles,
15. Probability (%) of thunderstorm activity occurring with dust episode visibility less than 5/8 mile.

**ABSTRACT:**

A DUST CLIMATOLOGY OF THE WESTERN UNITED STATES was prepared by the NCDC for the U. S. Nuclear Regulatory Commission, Washington, D. C. The primary source of data used to produce the publication was the original RECORD OF SURFACE WEATHER OBSERVATIONS for 180 selected stations from which the beginning and ending times of dust-caused visibility values were extracted. Maps are presented depicting annual number of dust episodes, dust episode durations, season of occurrence, and probability of thunderstorm inducement.

This file is available for purchase from the NCDC.

FILE TAG: FA00330.

FILE NAME: CEILING VISIBILITY WIND TABULATION.

TIME PERIOD: Variable, but usually for a 5 to 10 year period.

GEOGRAPHIC COVERAGE: Selected stations; United States.

FILE SIZE: 338 unpublished tabulations.

FORMAT: Monthly, seasonal, or annual frequency distribution tables of selected ceilings versus selected visibilities by wind direction (16 compass points).

FILE STRUCTURE: These unpublished tabulations are filed by station in the NCDC archives.

CONTENTS: The major parameters that make up this file are monthly, seasonal, or annual frequency distributions of ceiling (feet) versus visibility (miles) by wind direction (16 compass points).

ABSTRACT: These unpublished CEILING VISIBILITY WIND TABULATIONS were prepared over a number of years by the NCDC primarily for customers who had requirements for this type of information. The tabulations vary for each station, i.e., they may be monthly seasonal, or annual (all hours) only, or a combination thereof, and the years of data summarized are different.

The usual input for these tabulations is the simultaneous observations of ceiling, visibility, and wind direction and speed recorded 24 times a day on the RECORDS OF SURFACE WEATHER OBSERVATIONS and in the magnetic tape TD-3280 files. Most of these tabulations, on file in the NCDC archives, were accomplished for a 5 or 10 year period of record. Tabulations prepared for stations reporting less than 24 observations per day will carry a special notation indicating the actual hours of observation.

A CEILING VISIBILITY WIND TABULATION can also be tailored to a customer's need, e.g., the various increments of ceiling-visibility can be changed and the individual frequency distributions can be to 36 compass points from January 1, 1965 to the present.

Similar type tabulations are also available in the WIND-CEILING-VISIBILITY DATA AT SELECTED AIRPORTS publication file.

This file is available for purchase from the NCDC.

FILE TAG: FA00052.

FILE NAME: CLIMATIC STUDY OF THE NEAR COASTAL ZONE.

TIME PERIOD: Variable, 1854-1983.

GEOGRAPHIC COVERAGE: Near coastal zones in various parts of the world.

FILE SIZE: 8 publications, 29 microfiche.

FORMAT: Analyzed isopleth charts and charts depicting statistical data or tables.

FILE STRUCTURE: There are currently eight separate publications in this file, namely;

1. East Coast of the United States (June 1976),
2. West Coast of the United States (June 1976),
3. Persian Gulf and Gulf of Oman (May 1980),
4. Malacca and Sunda Straits (April 1982),
5. Red Sea South and Gulf of Aden (September 1982),
6. Southern California Operating Area (October 1983),
7. Caribbean Sea and Gulf of Mexico Volume 1,  
(September 1985),
8. Caribbean Sea and Gulf of Mexico, Volume 2  
(June 1986).

A limited stock of these publications is maintained by the NCDC and the National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161. They are also on microfiche and filed in the NCDC archives.

CONTENTS: Each publication contains narrative information on the Geographical and Data Coverage, Physical Features, and Climate of the marine area involved. Monthly isopleth charts and charts depicting statistical data or tables are presented for clouds, precipitation, visibility, ceiling-visibility, wind-visibility-cloudiness, scalar mean wind speed, wind speed < 11 and > 34 knots, wind speed 11-21 and 22-33 knots, surface wind roses, air and sea temperature, wave heights (isopleths and tables), and seasonal ocean surface currents.

ABSTRACT: The publications in this file were produced by the NCDC by order of the Commander, U. S. Naval Oceanography Command, under direction of the Officer in Charge, Naval Oceanographic Command Detachment, Asheville, North Carolina for the U. S. Navy. There are currently eight separate publications in this file covering the Near Coastal Zone marine areas of the 1) East Coast of the United States, 2) West Coast of the United States, 3) Persian Gulf and Gulf of Oman, 4) Malacca and Sunda Straits, 5) Red Sea South and Gulf of Aden, 6) Southern California Operating Area, 7) Caribbean Sea and Gulf of Mexico Volume 1, and 8) Caribbean Sea and Gulf of Mexico

Volume 2. Volumes 3 and 4 of the Caribbean Sea and Gulf of Mexico will be published in October 1986.

The primary source of data used to produce this file was the NCDC's magnetic tape TD-11XX files, which are a collection of ships weather observations from various registry from as early as 1854 to as recent as 1983, with the bulk of these observations spanning the last 30 years.

The sea surface current information was extracted from various U. S. Navy, Naval Oceanographic Office Special Publications.

This file is available for purchase from the NCDC.

FILE TAG: FA00043.

FILE NAME: DAILY MEANS AND EXTREMES OF TEMPERATURE, PRECIPITATION, AND SNOWFALL.

TIME PERIOD: Generally 1948 through the present.

GEOGRAPHIC COVERAGE: Selected stations; United States, U. S. Pacific Islands, U. S. Virgin Islands, and Puerto Rico.

FILE SIZE: None.

FORMAT: Daily and monthly averages and extremes tables.

FILE STRUCTURE: The program for "daily extremes" can be run by the NCDC and a computer printout table furnished for any station with daily climatological data in the magnetic tape TD-3200 files.

CONTENTS: The major parameters presented in the tables are daily and monthly averages and extremes of maximum and minimum temperatures, precipitation, and snowfall. The dates of the occurrences of extremes are shown. Also included are daily and monthly average temperature. Temperatures are in Deg. C and Deg. F and precipitation and snowfall are in both inches and millimeters.

ABSTRACT: Daily means and extremes of temperature, precipitation, and snowfall is a special program NCDC has developed for customers who have a requirement for this type of information. The tabulation is provided in a computer printout form and a copy is not retained for the files in the NCDC archives.

The input for this program is selected station's daily climatological data in magnetic tape TD-3200 files. Although data in the TD-3200 magnetic tape files are generally 1948 through the present, some station's period of record began in the 1930's.

This file is available for purchase from the NCDC.



FILE TAG: FA00042.

FILE NAME: ESTIMATING WATER EQUIVALENT SNOW DEPTH FROM RELATED METEOROLOGICAL VARIABLES.

TIME PERIOD: November-April; 1952-1953 through 1978-1979.

GEOGRAPHIC COVERAGE: Great Lakes and Northeastern United States.

FILE SIZE: One microfiche, one magnetic tape.

FORMAT: Narrative descriptions, illustrations, and annual analyzed charts.

FILE STRUCTURE: This historical publication is on microfiche and filed in the NCDC archives.

CONTENTS: The publication on microfiche presents narrative descriptions, illustrations, and formulae, where appropriate, of the data utilized, and the types of statistical analyses performed with these data. The charts depict annual snow load distribution (lbs/ft<sup>2</sup>) for 2-year, 50-year, and 100-year return periods.

ABSTRACT: ESTIMATING WATER EQUIVALENT SNOW DEPTH FROM RELATED METEOROLOGICAL VARIABLES was produced by the NCDC for the U. S. Nuclear Regulatory Commission. The primary source of data used in the study was summary of the day recordings by approximately 83 National Weather Service (RECORD OF SURFACE WEATHER OBSERVATIONS) and 1100 Cooperative (RECORD OF CLIMATOLOGICAL OBSERVATIONS) stations. For comparisons and plotting purposes, water equivalent estimates for the .5, .8, .9, .96, .98, and .999 probability levels, which correspond to 2-, 5-, 10-, 25-, 50-, 100-, and 1000-year return periods, were generated for the normal, lognormal, Weibull, and Fisher-Tippett, Type I distributions and stored on magnetic tape.

This file is available for purchase from the NCDC.

FILE TAG: FA00041.

FILE NAME: EXTREME WIND SPEEDS AT 129 STATIONS IN THE CONTIGUOUS UNITED STATES.

TIME PERIOD: Variable, between the years 1939-1977.

GEOGRAPHIC COVERAGE: Selected stations; United States except Alaska and Hawaii.

FILE SIZE: 6 microfiche.

FORMAT: Statistical probabilities.

FILE STRUCTURE: This publication is on microfiche and filed in the NCDC archives.

CONTENTS: This publication on microfiche presents narrative descriptions and formulae utilized in the preparation of the wind data for analyses, and the statistical methods used in these analyses. Data presented for each of 129 selected stations are 1) recorded (anemometer elevation) and calculated (10 meters above the ground) fastest-mile wind speeds (mph), and 2) predicted extreme wind speeds (mph) for return periods of 2 to 1,000,000 years.

ABSTRACT: EXTREME WIND SPEEDS AT 129 STATIONS IN THE CONTIGUOUS UNITED STATES was produced by the NCDC for the U. S. Department of Commerce, National Bureau of Standards and published under the NBS BUILDING SCIENCE SERIES 118. The primary source of data used in the preparation of this study was the original RECORD OF SURFACE WEATHER OBSERVATION forms from which the recorded fastest-mile wind speeds were extracted.

This file is available for purchase from the NCDC.

FILE TAG: FA00049.

FILE NAME: HISTORICAL EXTREME WINDS FOR THE UNITED STATES - ATLANTIC AND GULF OF MEXICO COASTLINES; HISTORICAL EXTREME WINDS FOR THE UNITED STATES - GREAT LAKES AND ADJACENT REGIONS.

TIME PERIOD: Variable, between the years 1872 through 1979.

GEOGRAPHIC COVERAGE: United States; Atlantic and Gulf of Mexico coastlines and Great Lakes and adjacent regions.

FILE SIZE: 2 publications, 7 microfiche.

FORMAT: Tabular and statistical data.

FILE STRUCTURE: A stock of these two publications is maintained by and available from the Division of Technical Information and Document Control, U. S. Regulatory Commission, Washington, D.C. 20555. They are also on microfiche and filed in the NCDC archives.

CONTENTS: Both publications contain narrative descriptions and formulae, where appropriate, on instrumentation history, measurement of extreme wind speed, categorization of station exposures, height reduction, and statistical analysis. Tabular data presented for each station are annual fastest-mile of wind speed (mph) for each year (10 meter elevation for airports, 30 meters for city offices) and wind direction when available. Statistical data include computed fastest-mile of wind (mph) for return periods of 2, 5, 10, 25, 50, 100, 200, 500, and 1000 years for elevations of 10 meters or 30 meters.

ABSTRACT: The HISTORICAL EXTREME WINDS FOR THE UNITED STATES - ATLANTIC AND GULF OF MEXICO COASTLINES and GREAT LAKES AND ADJACENT REGIONS were prepared by the NCDC for the U. S. Regulatory Commission, Washington, D. C.

The initial aim of these reports was to extract a large set of annual fastest-mile data for all available stations in each area. To include all data, the following procedures were used;

1. For the stations of interest, published annual extremes (obtained by ordering the daily values) were checked against the original trace charts. Readings judged reasonably accurate (+ 2 mph) were left unchanged due to the subjectivity involved in using the measuring scale. Many cases required adjustment to a higher value. For values determined to be too high, the adjusted extreme was compared to the next highest published value. If the next highest was larger than the adjusted, it was checked for accuracy and accepted as the annual extreme if reasonably accurate.

Otherwise, succeeding lower extremes were checked until one was found to be accurate.

2. For the period of record through June 1887 and for 1905-1911, fastest mile data were not extracted on station. Another measurement (five-minute maximum) was extracted and published. The annual five-minute maximum provided the highest five-minute speed for the year and proved to be a guide to the occurrence of the extreme fastest mile. It might be expected that the annual extreme fastest mile would occur at the time of the annual extreme five-minute maximum. Under certain conditions (such as thunderstorm-related winds), however, an extreme fastest mile could be included in a five-minute period with lower speed than the published annual extreme five-minute maximum.

3. For a few stations, no fastest mile or five-minute data have been extracted. For these, a visual check of all daily charts for each year was required. This was accomplished by determining an extreme for January (normally one of the windier months) and using this as a guide in visually reviewing daily charts for each succeeding month until a higher extreme was determined. This new value was then used in reviewing succeeding charts. By using some measure of extreme wind as a guide, the majority of daily charts could be eliminated with only a cursory glance. Through this process an annual extreme was determined.

This file is available for purchase from the NCDC.

FILE TAG: FA00035.

FILE NAME: NATIONAL THUNDERSTORM FREQUENCIES FOR THE CONTIGUOUS UNITED STATES.

TIME PERIOD: 1948-1977.

GEOGRAPHIC COVERAGE: Contiguous United States.

FILE SIZE: One publication, one microfiche.

FORMAT: Monthly and annual charts and tables.

FILE STRUCTURE: A stock of this publication is maintained by and available from the Division of Technical Information and Document Control, U. S. Nuclear Regulatory Commission, Washington, D. C. 20555. Data presented in the publication are included in magnetic tape TD-9945 file. The publication is also on microfiche and filed in the NCDC archives.

CONTENTS: This publication presents 1) a narrative description of data utilized and the analysis performed, 2) monthly and annual analyzed charts of the contiguous United States depicting the mean number of thunderstorms, 3) tables of monthly and annual mean number of thunderstorms for 450 stations, and 4) station listings.

ABSTRACT: The NATIONAL THUNDERSTORM FREQUENCIES FOR THE CONTIGUOUS UNITED STATES publication was prepared by the NCDC for the U. S. Regulatory Commission, Washington, D. C. The primary source of data used to produce the publication was the original RECORDS OF SURFACE WEATHER OBSERVATIONS from which the individual thunderstorm beginning and ending times were extracted. Quality control on these data included assuring 1) a 15-minute maximum duration of thunder (National Weather Service standard), 2) storm beginning times occur before ending times, and 3) record with storm occurrences over the midnight time period, or with multiple storm occurrences, are properly encoded. These beginning and ending times of thunderstorms for the 450 stations processed are in the NCDC magnetic tape TD-9945 file.

This file is available for purchase from the NCDC.

FILE TAG: FA00338.

FILE NAME: N-SUMMARY.

TIME PERIOD: Variable.

GEOGRAPHIC COVERAGE: Selected stations, worldwide.

FILE SIZE: 2674 unpublished summaries.

FORMAT: Means, and percentage frequency tabulations.

FILE STRUCTURE: These unpublished summaries are filed in the NCDC archives.

CONTENTS: The major parameters that make up this file are one or more of the following monthly, or seasonal, and annual tabulations:

1. Percentage frequency of surface winds (kts) by month, hour and month, to 16 points of the compass,
2. Percentage frequency of surface winds (kts) (seasonal and annual) to 16 points of the compass,
3. Precipitation amounts (in.),
4. Mean frequency of daily maximum temperature (Deg. F) mean maximum and extreme maximum temperature (Deg. F),
5. Mean frequency of daily minimum temperature (Deg. F), mean minimum and extreme minimum temperature (Deg. F), and mean daily temperature range (Deg. F),
6. Mean number of days favorable for indicated military operations,
7. Miscellaneous data; mean number of days occurrence of various weather phenomena,
8. Mean number of days with indicated total and low cloud amounts (oktas),
9. Percentage frequency of observations with low clouds (amount in 8ths, height in feet) and visibility (miles) reported,
10. Relative humidity means (%),
11. Percentage frequency distribution of wind speed (kts) and temperature (Deg. F),
12. Percentage frequency of visibility (miles) and various atmospheric phenomena,

13. Mean number of days with specified phenomena,
14. Mean cloudiness (%),
15. Snow depth (in.),
16. Percentage frequency of surface winds (kts) to 8 points of the compass (monthly),
17. Percentage frequency of surface winds (kts) to 8 points of the compass/seasonal,
18. Sea level pressure (mb), means and standard deviations.

ABSTRACT:

The standard N-SUMMARY in this file is prepared by the U. S. Air Force, Air Weather Service, Environmental Technical Application Center using as their source of data surface weather observations. There are approximately 2674 worldwide stations with five or more years data for which the N-SUMMARY was prepared. Each station's summary consists of one to 18 separate monthly, or seasonal, and annual tabulations. Some of the tabulations are for all hours of the day while others may be for each 3-hourly, 6-hourly, or 12-hourly segment of the day, and in some cases, for only one observation a day.

This file is available for purchase from the NCDC.

FILE TAG: FA00346.

FILE NAME: RADIOSONDE SUMMARY.

TIME PERIOD: Variable.

GEOGRAPHIC COVERAGE: Selected stations; worldwide.

FILE SIZE: 592 unpublished summaries.

FORMAT: Monthly, seasonal, and annual percentage frequency distribution tables by constant height.

FILE STRUCTURE: The unpublished summary for each station is filed in the NCDC archives.

CONTENTS: The major parameters that make up this file are monthly, seasonal, and annual percentage frequency distribution tabulations of height (meters), temperature (Deg. C), relative humidity (%), and wind (direction to 16 points, speed in knots) if available, for the 850-, 700-, 500-, 300-, and 200- millibar constant pressure levels.

ABSTRACT: This standard radiosonde summary was prepared by the U. S. Air Force, Air Weather Service, Environmental Technical Applications Center utilizing as their source of data the Global Telecommunication System. The period of record summarized for each of the 592 stations varies, but data utilized were generally taken from the years 1949 through 1965.

This file is available for purchase from the NCDC.



FILE TAG: FA00081.

FILE NAME: SERVICE RECORDS RETENTION SYSTEM.

TIME PERIOD: July 1, 1983 through the present (updated daily).

GEOGRAPHIC COVERAGE: Northern Hemisphere.

FILE SIZE: 915 magnetic tapes through December 31, 1985; 9-track odd parity, 1600bpi, ASCII-BINARY, unlabeled. Copies of these data can be furnished on magnetic tape (EBCDIC mode only), as computer graphics, or as computer printouts.

FORMAT: 284 characters per record, 20 records per block.

FILE STRUCTURE: Data in this file are sorted on one magnetic tape a day. Each magnetic tape consists of a header block of 256 characters, then one tape mark, followed by data files of 5680 characters per block.

CONTENTS: Although the following inventories are not all inclusive, each magnetic tape consists of data from which computer graphics or alphanumeric products can be furnished;

#### Graphic Inventory

##### 1. North American:

Surface Analysis/Forecasts,  
Weather Depiction,  
Radar Summary,  
24 Hr. Max/Min Temperature Chart,  
24 Hr. Precipitation Plot,  
Precipitable Water,  
24 Hr. Snowfall/Snow Cover,  
Constant Pressure Analysis/Forecasts,  
Lifted Index/K Index,  
1000-500mb Thickness,  
Freezing Level,  
Vertical Velocity,  
Vorticity Analysis/Forecasts,  
Isotach Analysis/Forecasts.

##### 2. Northern Hemisphere:

Surface Analysis,  
Constant Pressure Analysis/Forecasts,  
Isotach Analysis/Forecasts,  
Lifted Index,  
Surface-500mb Relative Humidity,  
1000-500mb Thickness.

3. Miscellaneous Charts:

Streamline Analysis/Forecasts,  
Bering Sea Ice,  
12-Hourly Surface Isobars.

Alphanumeric Inventory

1. Agricultural Forecasts/Observations/Advisories.

2. Air Pollution Products.

3. Aviation Products:

Airmet,  
Area Forecasts (National/International),  
Sigmet (National/International),  
Terminal Forecasts (National/International),  
Pirep.

4. Fire Weather Products.

5. Hydrologic Products.

6. Observation Products:

Surface Observations (U.S./Canada/Mexico/Caribbean/  
Bahamas),  
Radiosonde Observations (U.S./Canada/Mexico/  
Caribbean/Bahamas),  
Weather Radar Data.

7. Climatological Reports.

8. Marine Products:

Coastal Warnings/Forecasts,  
Oceanographic Data,  
Great Lakes Warnings/Forecasts,  
Gale Warnings/Forecasts,  
Marine Observations,  
Small Craft Advisories,  
Tsunami Messages.

9. Public Products:

Hurricane/Tropical Cyclone Advisory/Warnings,  
Local/State/Zone Forecasts,  
Recreational Reports,  
Severe Weather Statement/Watch/Warning,  
Tornado Warning.

10. Narratives/Discussions/Coded Products.

11. Guidance Forecasts.

12. Tables/Summaries/Statistical Products.

13. Satellite Products.

ABSTRACT:

Basic meteorological and hydrological data, analyses, forecasts, and warnings are now distributed among National Weather Service Offices over a new communications system. This system replaced existing teletype and facsimile equipment, and in some cases circuits. Each National Weather Service field office now has processors and displays suited to its requirements.

AFOS - The Automation of Field Operations and Services was developed to increase the productivity and effectiveness of National Weather Service personnel and to increase the timeliness and quality of their warning and forecasting services. The major field implementation has been taking place since 1978.

SRRS - The Service Records Retention System was developed to store National Weather Service meteorological and hydrological data, analyses, forecasts, and warnings for a five year period. Starting with July 1, 1983, all of these items are stored on one magnetic tape daily (0000-2359GMT) by the System Monitoring and Coordination Center, Washington, D.C. Copies of these magnetic tapes are then sent to the NCDC for retention. The NCDC can service requests for products from the SRRS approximately seven days after the actual date of the data.

Two types of products are available to user at the present time: 1) graphic displays of meteorological analyses and forecast charts and 2) alphanumeric displays of narrative summaries and meteorological/hydrological data.

GRAPHICS

Northern Hemisphere, North America, and United States meteorological analyses and forecast charts are displayed on Polar Stereographic map backgrounds. Eastern Hemisphere, Western Hemisphere, and Pacific Hemisphere tropical strip analyses are displayed on Mercator map backgrounds. All of the backgrounds contain state and international political boundaries, coastlines, and lines of latitude and longitude.

Each meteorological parameter analyzed on a chart is stored as a separate product. For example, on the 300-millibar constant pressure chart, heights and

isotachs are stored as separate products. This will allow users to request products separately or to overlay the products on the map background. There are two limitations in overlaying graphic products: 1) all products must have the same map background and 2) only three products can be displayed simultaneously. NCDC can also retrieve and provide map backgrounds only as a separate product.

Full size meteorological analyses and forecast charts are furnished on 8 1/2 X 11 inch paper. Two additional options are available to users. Both of these options zoom the chart in on a specific area. The first option will display any small area of a specified chart on 8 1/2 X 11 inch paper. The second option will display any "strip" of a specified chart, e.g., an ocean route from New York, New York to London, England on 11 X 11 up to 40 inch paper. The scales of the map backgrounds which can be displayed are as follows:

- 1) Northern Hemisphere Polar Stereographic and Eastern, Western, and Pacific Hemisphere Mercator:

<u>Zoom Ratio</u>	<u>Map Scale</u>
1:1	1:80 million
4:1	1:40 million
9:1	1:27 million
16:1	1:20 million
25:1	1:16 million

- 2) North America Polar Stereographic:

<u>Zoom Ratio</u>	<u>Map Scale</u>
1:1	1:40 million
4:1	1:20 million
9:1	1:13 million
16:1	1:10 million
25:1	1:8 million

#### ALPHANUMERICS

ALPHANUMERICS - In a computer system, alphanumeric means the data sets consist of both letters and numbers. For example, a Surface Aviation Observation may appear as: INT SA 0745 E100 BKN 15 179/53/48/1303/009.

Duplicate, partial, or retransmitted alphanumeric products may appear on the daily SRRS during periods of dual computer operation or maintenance outages on the AFOS. Even though the latest time of transmission may satisfy a particular order, the user will receive all transmissions of the specified alphanumeric product.

Alphanumeric products available from the SRRS fall into three categories; local, national, and international. Users should be aware that international data are limited; only forecasts, warnings, and limited aviation weather observations issued or received by the United States National Weather Service are in this system. International observations are mostly limited to the Bahamas, U. S. Virgin Islands, and parts of Canada and Mexico.

Users of magnetic tape data should be aware that documentation available for this file is limited and consists primarily of information on accessing data files for a specific node, e.g., all data received by and/or forecasts, warnings, etc., issued by MKC (node) Kansas City, Missouri.

This file is available for purchase from the NCDC.

FILE TAG: FA00348.

FILE NAME: REVISED UNIFORM SUMMARY OF SURFACE WEATHER OBSERVATIONS.

TIME PERIOD: Variable periods of record between January 1940 and December 1983 (updated periodically).

GEOGRAPHIC COVERAGE: Global; primarily for present and former U. S. Military installations.

FILE SIZE: 460 unpublished station summaries with 5 or more years of summarized data; 1746 microfiche.

FORMAT: Monthly and annual tabular data and frequency distributions.

FILE STRUCTURE: There are 460 unpublished summaries in this file of which 291 are on microfiche. These summaries and microfiche are filed in the NCDC archives.

CONTENTS: The major parameters that make up this file are;

PART A - Monthly and annual summaries on percentage frequency of occurrence of weather conditions and percentage of days with various atmospheric phenomena.

PART B - Summaries of percentage frequency of daily precipitation, extreme 24-hour amounts of precipitation in inches, and these same type of summaries for snowfall and snowdepth.

PART C - Monthly and annual summaries and 3-hourly summaries by month of surface winds.

PART D - Monthly and annual summaries and 3-hourly summaries by month of ceiling versus visibility and skycover.

PART E - Cumulative percentage frequency of occurrence of daily maximum, minimum, and mean temperatures; extreme values of maximum and minimum temperatures; monthly and annual psychrometric summaries and 3-hourly psychrometric summaries by month of temperature versus wet-bulb temperature depression; monthly and annual cumulative percentage frequency of occurrence of relative humidity; and means and standard deviations of dry-bulb, wet-bulb, and dew-point temperatures.

PART F - Means and standard deviations of station pressure in inches of mercury and millibars.

ABSTRACT: This file, initiated in 1966, is a successor to the unpublished UNIFORM SUMMARY OF SURFACE WEATHER OBSERVATIONS prepared during the 1950's and early 1960's. Both were prepared by the U. S. Air Force, Air

Weather Service, Environmental Technical Applications Center. The periods of record summarized for each station varies and, depending on data availability, Parts A, B, C, D, E, or F may or may not have been prepared for an individual station. Updates may be accomplished on five year cycles and usually are for current operational stations only.

This file is available for purchase from the NCDC.

FILE TAG: FA00353.

FILE NAME: STABILITY ARRAY (STAR).

TIME PERIOD: Not time dependent.

GEOGRAPHIC COVERAGE: 300 United States and 25 selected worldwide stations.

FILE SIZE: 597 unpublished tabulations.

FORMAT: Monthly, seasonal, and annual, or combination thereof, frequency and percent frequency tables by stability category.

FILE STRUCTURE: The unpublished tabulations are filed in the NCDC archives. Data presented in these tabulations for most stations are also stored in magnetic tape TD-9773 files in the NCDC archives.

CONTENTS: The STABILITY ARRAY tabulations consist of monthly, seasonal, or annual tables of wind direction (16 points and calm) versus wind speed (kts) groups for each stability category.

ABSTRACT: STAR was born from the work of Pasquill (1951), Turner (1964), and Martin and Tidvart (1968). It provides, at least roughly, the diffusion characteristics for the lowest part of the atmosphere and biosphere. It is an objective method of determining stability from readily available surface meteorological observations utilizing only the variables of ceiling height, total sky cover, and wind direction and speed as input. The methodology employed recognizes that stability near the ground is dependent primarily upon net radiation and wind speed. Wind direction is not a factor in objective determination of stability categories. Without the influence of clouds, insolation (incoming radiation) during the day is dependent mainly upon the solar elevation, which is a function of time of year, time of day, and station location. When clouds exist, their cover and thickness decrease incoming and outgoing radiation. In this system, insolation is estimated by solar elevation and modified for existing conditions of total sky cover and ceiling height. At night, estimates of outgoing radiation are again based on total sky cover and ceiling height. The STABILITY ARRAY consists of frequency and percent frequency tables of wind direction versus wind speed groups for each stability category. This system produces seven categories ranging from extremely unstable (A) to neutral (D) to extremely stable (G) and can be summarized on a monthly, seasonal, and annual basis.



NCDC can produce a STABILITY ARRAY tabulation for any year or number of years for any station (worldwide) whose hourly or 3-hourly surface meteorological observations are stored in TD-3280 or TD-9999 magnetic tape files.

A STAR TABULATIONS MASTER LIST (Index) is available to users from the NCDC.

This file is available for purchase from the NCDC.

FILE TAG: FA00386.

FILE NAME: SUMMARY OF METEOROLOGICAL OBSERVATIONS, SURFACE (SMOS).

TIME PERIOD: Variable periods of record between January 1949 through December 1985 (updated periodically).

GEOGRAPHIC COVERAGE: Global; primarily for present and former U. S. Navy and U. S. Marine Corps installations.

FILE SIZE: 117 unpublished station summaries with 5 or more years of summarized data; 528 microfiche.

FORMAT: Monthly and annual tabular data and frequency distributions.

FILE STRUCTURE: There are 117 unpublished summaries in this file of which 88 are on microfiche. These summaries and microfiche are filed in the NCDC archives.

CONTENTS: The major parameters that make up this file are;

PART A - Monthly and annual summaries on percentage frequency of occurrence of weather conditions and percentage of days with various atmospheric phenomena.

PART B - Summaries of percentage frequency of daily precipitation, extreme 24-hour amounts of precipitation in inches, and these same type of summaries for snowfall and snowdepth.

PART C - Monthly and annual summaries and 3-hourly summaries (wind direction to 16 points versus speed groups in miles per hour) by month of surface winds.

PART D - Monthly and annual summaries and 3-hourly summaries by month of ceiling (ft.) versus visibility (miles) and skycover (10ths).

PART E - Cumulative percentage frequency of occurrence of daily maximum, minimum, and mean temperatures (Deg. F); extreme values of maximum and minimum temperatures (Deg. F); monthly and annual psychrometric summaries and 3-hourly psychrometric summaries by month of temperature versus wet-bulb temperature depression; monthly and annual cumulative percentage frequency of occurrence of relative humidity (%); and means and standard deviations of dry-bulb, wet-bulb, and dew-point temperatures.

PART F - Means and standard deviations of station pressure in inches of mercury and millibars.

ABSTRACT: These unpublished summaries are prepared under the direction of the Commander, U. S. Naval Oceanographic Command and placed on microfiche by the NCDC. The

periods of records summarized for each station varies and, depending on data availability, parts A, B, C, D, E, or F may or may not have been prepared for an individual station. Updates are usually accomplished on five year cycles for current operational stations only.

This file is available for purchase from the NCDC.

FILE TAG: FA00356.

FILE NAME: SUMMARY OF WINDS ALOFT (WBAN-120).

TIME PERIOD: Variable.

GEOGRAPHIC COVERAGE: Selected stations; worldwide.

FILE SIZE: 1454 unpublished summaries.

FORMAT: Monthly or seasonal percentage frequency tabulations by constant pressure or constant height levels.

FILE STRUCTURE: The unpublished summary for each station is filed in the NCDC archives.

CONTENTS: The major parameters that make up this file are wind direction (16 point and calm) versus wind speed (m/s, kts, mph) group tabulations. Also included are monthly or seasonal;

1. Standard deviation of east components,
2. Standard deviation of north components,
3. Standard vector deviation of wind velocity,
4. Correlation coefficient of north and east components,
5. Average wind speed,
6. Scalar wind speed,
7. Ratio of standard deviations,
8. Standard deviation of wind components along the major axis of the distribution.
9. Standard deviation of wind components perpendicular to the major axis of the distribution,
10. Angle of rotation of the major axis of the wind distribution counter-clockwise from East-West direction,
11. Resultant wind direction and resultant wind speed,
12. Standard deviation of wind speeds.

ABSTRACT: The majority of the Winds Aloft Summaries in this file were prepared by the U. S. Air Force, Air Weather Service, Environmental Technical Applications Center. The format, however, is also used by the NCDC and the U. S. Navy, Naval Oceanographic command and their summaries are included in this file.

These summaries were prepared for approximately 712 worldwide stations who measured winds aloft either by PIBAL or RAWINSONDE instruments. Separate summaries for each station may include one or more of the following:

1. Seasonal winds by constant pressure,
2. Monthly winds by constant pressure,
3. Seasonal winds by constant height,
4. Monthly winds by constant height.

Most of the summaries were prepared utilizing data for some period of time between the years 1945 and 1964. Scheduled times of winds aloft observations were 0300, 0900, 1500, and 2100 GMT through May 30, 1957 and 0000, 0600, 1200, 1800 GMT subsequently. The constant pressure levels in most summaries are the surface, 850-, 700-, 500-, 300-, and 200-millibar levels while the constant height levels are between the surface and 18,000 meters.

The heights (upper limits) of winds aloft observations have varied over the years, and in general, they reached greater heights in the early 1960's than in previous years. It also should be known that PIBAL summaries may be biased due to that fact cloudy weather limits the height of visual contact with the pilot balloon.

This file is available for purchase from the NCDC.

FILE TAG: FA00050.

FILE NAME: USE OF CLIMATIC DATA IN ESTIMATING STORAGE DAYS FOR SOILS TREATMENT SYSTEMS.

TIME PERIOD: Any 20 to 30 years period of record.

GEOGRAPHIC COVERAGE: Selected stations; United States, U. S. Pacific Islands, U. S. Virgin Islands, and Puerto Rico.

FILE SIZE: One publication, 2 microfiche.

FORMAT: Tabular and statistical data by station.

FILE STRUCTURE: This publication on 2 microfiche and all unpublished tabulations are filed in the NCDC archives.

CONTENTS: The publication presents detailed information on EPA-1, EPA-2, and EPA-3 programs that can be run by NCDC for any station with at least 20 years of consecutive daily data in magnetic tape TD-3200 files. Primarily, data presented are the maximum storage days each year in a final table which also presents the mean, the standard deviation, the unbiased third movement about the mean, the coefficient of skewness, and storage days for recurrence intervals of 5, 10, 25, and 50 years. Chronological listings of the actual data and computations for the entire period of record can also be furnished.

ABSTRACT: The number of days each year that Soils Treatment Systems may be inoperative because of unfavorable weather conditions can be estimated from analyses of daily climatological data in the magnetic tape TD-3200 files. Programs have been developed by NCDC, through support of the Environmental Protection Agency, that provides estimates of storage requirements using 20 to 30 years of these daily climatological data. Two of them, commonly called EPA-1 and EPA-3 programs are designed for use at stations in cold regions (January normal temperature colder than 40 degrees Fahrenheit) while another EPA-2, is best suited for wet regions (normal annual precipitation of 50.00 inches or more).

The publication USE OF CLIMATIC DATA IN ESTIMATING STORAGE DAYS FOR SOILS TREATMENT SYSTEMS on microfiche presents detailed information on the three EPA programs that can be run by NCDC for selected stations.

This file is available for purchase from the NCDC.

FILE TAG: FA00074.

FILE NAME: U. S. NAVY HINDCAST SPECTRAL OCEAN WAVE MODEL CLIMATIC ATLAS; NAVAIR 50-1C-538 NORTH ATLANTIC OCEAN and NAVAIR 50-1C-539 NORTH PACIFIC OCEAN.

TIME PERIOD: North Atlantic Ocean January 8, 1956-December 30, 1975; North Pacific Ocean September 1, 1964-February 23, 1977.

GEOGRAPHIC COVERAGE: North Atlantic and North Pacific Oceans.

FILE SIZE: 2 publications, 18 microfiche.

FORMAT: Narrative information, isopleth charts, and tabular data.

FILE STRUCTURE: A limited stock of the two publications in this file is maintained by the NCDC and the National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161. They are also on microfiche (9 microfiche per publication) and filed in the NCDC archives.

CONTENTS: Narrative information includes an 1) overview of parameters, data displays and isopleth analyses, comparison of the SOWM climatology with other wave climatologies, and 2) appendices on SOWM development, the FIB technique, parameter derivations, applications of contingency tables, duration and interval tables, and comparison of SOWM with other climatologies.

Isopleth charts present monthly and annual analyses of wind speed ( $\leq 10$  and  $\geq 34$  knots), wave heights ( $< 5$  and  $< 8$  feet), wave heights ( $> 12$  and  $\geq 20$  feet), and wave slope ( $\leq 0.05$  and  $\geq 0.10$ ).

Percent frequency tables included are monthly and annual wind direction (8 compass points) and speed (kts), wave heights (ft) and wind speed (kts), wave height (ft) and wave slope ( $\alpha$ ), wave height (ft) and wave period (seconds), wave height and directionality, wave height and primary wave direction, primary wave direction and wind direction, wind speed durations, wind speed intervals, wave height durations, wave height intervals, wave slope duration, and wave slope intervals.

ABSTRACT: This pilot atlas file introduces a new, numerically derived, historical data set in the form of a wind and wave climatology. It is intended to provide the design, scientific, and operational communities a more accurate representation of the overall wave climate of ocean areas than is available from other sources. The U. S. NAVY HINDCAST SPECTRAL OCEAN WAVE MODEL CLIMATIC ATLAS for the North Atlantic Ocean and North Pacific Ocean

were prepared by the NCDC under the Commander, U. S. Naval Oceanography Command Detachment, Asheville, North Carolina. The primary source of data used to produce this file was magnetic tape TD-9782 files. Other related files are TD-9786, TD-9787, TD-9791, and TD-9797.

This file is available for purchase from the NCDC.



FILE TAG: FA00045.

FILE NAME: WIND-CEILING-VISIBILITY DATA AT SELECTED AIRPORTS.

TIME PERIOD: Variable, 1948-1978.

GEOGRAPHIC COVERAGE: Selected stations; United States, U. S. Pacific Islands, and Puerto Rico.

FILE SIZE: 130 microfiche.

FORMAT: Annual wind graphs and tabular data.

FILE STRUCTURE: The eighteen volumes of this publication are on the indicated number of microfiche ( ) and filed in the NCDC archives as follows:

Vol. 1-New England (5)	Vol. 6A-Southwest (7)
Vol. 2A-Eastern (8)	Vol. 6B-Southwest (9)
Vol. 2B-Eastern (8)	Vol. 7A-Rocky Mountain (7)
Vol. 3A-Southern (9)	Vol. 7B-Rocky Mountain (8)
Vol. 3B-Southern (8)	Vol. 8-Northwest (8)
Vol. 4A-Great Lakes (10)	Vol. 9A-Western (7)
Vol. 4B-Great Lakes (8)	Vol. 9B-Western (6)
Vol. 5A-Central (5)	Vol. 10A-Alaska & Pacific (6)
Vol. 5B-Central (5)	Vol. 10B-Alaska & Pacific (6)

CONTENTS: The 3-hourly wind data for each airport are presented as annual wind graphs (wind rose) and wind tabulations for six day and night ceiling-visibility classes. Also presented is an annual all hours all ceiling-visibility conditions wind graph. Wind directions are to 16 points and wind speeds are in miles per hour. The seven classes are as follows:

Class 1 = ceiling equal to or greater than 1,500 feet and visibility equal to or greater than 3 miles.

Class 2 = ceiling less than 1,500 feet and/or visibility less than 3 miles.

Class 3 = ceiling less than 1,500 feet and/or visibility less than 3 miles, but ceiling equal to or greater than 400 feet and visibility equal to or greater than 1 mile.

Class 4 = ceiling less than 400 feet and/or visibility less than 1 mile, but ceiling equal to or greater than 200 feet and visibility equal to or greater than 1/2 mile.

Class 5 = ceiling less than 200 feet and/or visibility less than 1/2 mile, but ceiling equal to or greater than 100 feet and visibility equal to or greater than 1/4 mile.

Class 6 = ceiling less than 100 feet and/or visibility less than 1/4 mile.

Class 7 = all ceiling and visibility conditions; sums of Classes 1 and 2; also the sum of Classes 1 and 3 through 6.

**ABSTRACT:**

The primary source of data used to produce the WIND-CEILING-VISIBILITY DATA AT SELECTED AIRPORTS publication was all available 3-hourly ceiling, visibility, and wind direction and speed from the RECORDS OF SURFACE WEATHER OBSERVATIONS that are in the magnetic tape TD-3280 files for the period January 1, 1948 through December 31, 1978. Annual wind graphs and tabular data for 284 selected airport stations are included in the 18 volumes of this publication.

This file is available for purchase from the NCDC.

FILE TAG: FA00359.

FILE NAME: WIND DIRECTION VERSUS WIND SPEED TABULATION.

TIME PERIOD: Variable, but usually for a 5 to 10 year period.

GEOGRAPHIC COVERAGE: Selected stations; United States and worldwide U. S. Military installations.

FILE SIZE: 585 unpublished tabulations, 585 microfiche.

FORMAT: Monthly by 3-hourly increments, monthly, seasonal, or annual (all hours) wind direction versus wind speed groups; frequency distribution or percentage frequency distributions.

FILE STRUCTURE: The unpublished tabulations are on microfiche and filed in the NCDC archives.

CONTENTS: The major parameters that make up this file are wind direction (16 points and calm) versus wind speed (m/s, kts, mph) tabulations.

ABSTRACT: The unpublished wind direction versus wind speed tabulations in this file were prepared over a number of years by the NCDC primarily for customers who had requirements for this type of information. The tabulations vary for each station, i.e., they may be monthly by 3-hourly increments, monthly, seasonal, annual (all hours) only, or a combination thereof, and the years of data summarized are different.

The usual input for these tabulations is the simultaneous observations of wind direction and speed recorded hourly 24 times a day on the RECORDS OF SURFACE WEATHER OBSERVATIONS, and placed in the magnetic tape TD-3280 files. Most wind tabulations on file were accomplished for a 5 or 10 year period of record. Tabulations prepared for stations reporting less than 24 observations per day will carry a special notation indicating the actual hours of observation.

This type of wind tabulation can also be tailored to a requester's need, e.g., wind direction to 36 compass point and wind speed into specified groups, for any period in the TD-3280 magnetic tape files after 1964. A wind rose can also be produced by the NCDC.

Wind direction versus wind speed type tabulations are also available in the REVISED UNIFORM SUMMARY OF SURFACE WEATHER OBSERVATIONS, SUMMARY OF METEOROLOGICAL OBSERVATIONS-SURFACE, CLIMATOGRAPHY OF THE UNITED STATES NO's 82 and 90, N-SUMMARY, WIND ENERGY RESOURCE INFORMATION SUMMARY, and STABILITY ARRAY files.

This file is available for purchase from the NCDC.

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FILE TAG: FA00396.

FILE NAME: BAROGRAPH CHARTS.

TIME PERIOD: January 1, 1889 through the present (updated quarterly).

GEOGRAPHIC COVERAGE: Selected stations; United States, U.S. Pacific Islands, U.S. Virgin Islands, and Puerto Rico.

FILE SIZE: Approximately 36,000 microfiche.

FORMAT: Continuous recording charts.

FILE STRUCTURE: Historical barograph charts (also known as barograms) from January 1889 through the present are filed in the NCDC archives. Each stations charts are also on microfiche for varying periods of record. On the average, charts for one station are placed on 4 microfiche each year.

CONTENTS: Pen and ink markings across graphs indicating continuous surface station pressure in millibars or inches of mercury.

ABSTRACT: The primary source of these barograph charts is stations operated by the National Weather Service, Federal Aviation Administration, U.S. Air Force, and U.S. Navy. Although these charts are currently placed on microfiche each quarter after they are received by the NCDC, not all historical charts are on microfiche.

Each stations period of record is different. The INDEX OF ORIGINAL SURFACE WEATHER RECORDS by State provides a listing of those stations for which these charts are available from 1889 through 1981.

This file is available for purchase from the NCDC.

FILE TAG: FA00392.

FILE NAME: BUOY OBSERVATIONS (NDBO).

TIME PERIOD: October 1972 through the present (updated monthly).

GEOGRAPHIC COVERAGE: United States coastal marine (BUOY) and headland (C-MAN) stations for the Great Lakes, North Atlantic Ocean, North Pacific Ocean, Gulf of Alaska, Gulf of Mexico and Hawaiian Islands areas.

FILE SIZE: 6 cubic feet of computer printouts, 94 microfiche.

FORMAT: Hourly or 3-hourly observations.

FILE STRUCTURE: The computer printouts and microfiche of these printouts from January 1, 1980 through the present are filed in the NCDC archives. In addition these data are in the magnetic tape TD-1138 file from October 1, 1979 through the present and magnetic tape TD-1129 file from January 1, 1970 through the present.

CONTENTS: The major parameters that make up this file are latitude and longitude of the station, wind direction (whole degrees to 36 points) and speed (knots), sea level pressure (mb), temperature and sea surface temperature (Deg. C), and sea height (1/2 meters) and period (coded, seconds).

ABSTRACT: Forecasts and the issuances of watches and warnings by the National Weather Service (NWS) in the marine and coastal areas of the United States depend, for the most part, on meteorological observations. The marine environment poses unique problems to the acquisition and collection of these observations. New electronic hardware had to be developed by the NOAA Data Buoy Center (NDBC) to ensure the uninterrupted operation of a remote weather observing system in a severe marine environment. The NDBC was also given the task of outfitting the network with environmental data systems having proven basic measurement capabilities, but with provisions to accommodate expansion to meet NWS desired meteorological observations when appropriate sensors become available.

Buoy observations have been converted and stored in the TD-1129 magnetic tape file since January 1, 1970, but are only stored in TD-1138 magnetic tape file since October 1, 1979. The conversion process does not, however, include wave spectra data. The Coastal-Marine Automated Network (C-MAN) data were added to this file in March 1983, but most of the 40 odd C-MAN stations were established in 1984.

The computer printouts in this file are in the TD-1129 magnetic tape file format and do not contain all the meteorological measurements recorded by buoy or C-MAN stations. Check the TD-1138 magnetic file for other measurements available. The NDBC considers the quality of these data excellent except for wave data previous to 1977. These wave data decline in quality as you go back in time.

Meteorological observations are not the only data recorded by NDBO BUOY and C-MAN stations. Oceanographic observations on such parameters as salinity, subsurface temperatures, and ocean currents are also measured. These data are available from the National Oceanographic Data Center, NESDIS, NOAA, Washington, D. C. 20235.

This file is available for purchase from the NCDC.

FILE TAG: FA00026.

FILE NAME: MARINE COASTAL WEATHER LOG.

TIME PERIOD: July 1, 1948 through the present (updated monthly).

GEOGRAPHIC COVERAGE: United States, U. S. Virgin Islands, and Puerto Rico.

FILE SIZE: 105 cubic feet of manuscript records, 2400 microfiche.

FORMAT: 3-hourly weather observations.

FILE STRUCTURE: The manuscript records from July 1, 1948 through the present and these records on microfiche from July 1, 1948 through December 31, 1983 are filed in the NCDC archives.

CONTENTS: The major parameters that make up this file are cloud condition (C=clear, P/C=partly cloudy, CY=cloudy), present weather, visibility (miles), wind direction (16 points), and speed (kts), state of sea (height in feet, period in seconds), sea surface temperature (Deg. C or Deg. F), temperature (Deg. C or Deg. F), and station pressure (in.Hg).

ABSTRACT: The primary source of these manuscript records is from U. S. Coast Guard land stations, light stations, and ship stations. Currently these records are received from 140 U. S. Coast Guard stations monthly, but the number of reporting stations has varied from year to year.

This file is available for purchase from the NCDC.



FILE TAG: FA00024.

FILE NAME: ORIGINAL MONTHLY RECORD OF OBSERVATIONS  
(W. B. Form 1001).

TIME PERIOD: 1872-1947.

GEOGRAPHIC COVERAGE: Selected stations, Contiguous United States.

FILE SIZE: 2,500 cubic feet of manuscript records.

FORMAT: Twice daily and daily observations and monthly averages  
and extremes on monthly records.

FILE STRUCTURE: These manuscript records are filed in the NCDC archives  
by station.

CONTENTS: The major parameters that make up this file are in three  
parts:

1. Twice daily observations of;
  - a. station pressure and sea level pressure (in. Hg),
  - b. dry bulb, wet bulb, and dew point temperatures (Deg. F),
  - c. maximum and minimum temperatures for the previous 12 hours (Deg. F),
  - d. relative humidity (%),
  - e. wind direction (8 points) and speed (mph),
  - f. maximum wind speed for the previous 12 hours (mph),
  - g. precipitation amount (in.) for the previous 12 hours,
  - h. cloud amount (10ths), kind, and direction of movement (from, scale to 8 points),
  - i. state of weather (plain language).
2. Daily observations of;
  - a. maximum and minimum temperature (Deg. F),
  - b. average temperature with departure from normal (Deg. F),
  - c. precipitation amount with departure from normal (in.) and beginning and ending times,
  - d. snowfall and snowdepth (in.),
  - e. average cloud amount (10ths),
  - f. character of day (clear, partly cloudy, cloudy).
3. Monthly means and extremes of the parameters in 1 and 2.

ABSTRACT: The primary source of the manuscript records in this file is from U. S. Weather Bureau (now known as the National Weather Service) first order stations during the period 1872-1947. The twice daily observations were not taken at the same time each day by those stations, nor were they taken at the same time historically by

each station. Times of observations vary from 05AM to 12PM and from 12PM to midnight local standard time.

Some of the twice daily, daily, and monthly observations, averages and extremes, are also presented in the CLIMATOLOGICAL RECORD BOOK file.

The INDEX OF ORIGINAL SURFACE WEATHER RECORDS lists those stations and the period of record for which the manuscript records in this file are available. They are listed under Meteorological Summary which indicates that "some type" of monthly summary is on file in the NCDC archives.

This file is available for purchase from the NCDC.

FILE TAG: FA00374.

FILE NAME: PRELIMINARY LOCAL CLIMATOLOGICAL DATA.

TIME PERIOD: January 1949 through the present (updated monthly).

GEOGRAPHIC COVERAGE: Selected stations; United States, U. S. Pacific Islands, U. S. Virgin Islands, and Puerto Rico.

FILE SIZE: 41 cubic feet of forms.

FORMAT: Monthly forms of daily data.

FILE STRUCTURE: The PRELIMINARY LOCAL CLIMATOLOGICAL DATA forms for each selected station are filed in the NCDC archives.

CONTENTS: The major parameters included in this file where available, are daily; maximum and minimum temperatures (Deg. F), average temperature with departure from normal (Deg. F), heating and cooling degree days (base 65 Deg. F), precipitation (in.), snowfall (in.), snow on ground at observation time (in.), average wind speed (mph), fastest mile of wind (direction to 36 points, speed in miles per hour), sunshine (total minutes and percent possible), sky cover sunrise-sunset (10ths), weather occurrences (type), and peak wind (direction to 16 points, speed in knots); monthly average maximum and minimum temperatures (Deg. F), average temperature with departure from normal (Deg. F), highest and lowest temperature (Deg. F), heating and cooling degree day totals with departure from normal (Deg. F), precipitation total with departure from normal (in.) and greatest in 24 hours, snowfall total (in.) and greatest in 24 hours; monthly number of days clear, partly cloudy, and precipitation of 0.01, 0.10, 0.50, and 1.00 inch or more; and seasonal total heating and cooling degree days (base 65 Deg. F).

ABSTRACT: The primary source of data used to create the PRELIMINARY LOCAL CLIMATOLOGICAL DATA (PLCD) is the summary of the day from records of SURFACE WEATHER OBSERVATIONS forms MF1-10B or 10C. Users of the data in this file should be aware that they are preliminary reports and are not quality controlled. Most of the PLCD's are handwritten, but for some stations, NCDC produces them by computer.

Currently, PLCD's are prepared monthly for 276 selected stations, but the number of stations in this file varies historically from month to month and year to year.

This file is available for purchase from the NCDC.

FILE TAG: FA00343.

FILE NAME: RADAR WEATHER OBSERVATIONS.

TIME PERIOD: January 1, 1950 through the present (updated monthly).

GEOGRAPHIC COVERAGE: Selected stations; United States and Puerto Rico.

FILE SIZE: 768 cubic feet of manuscript records, 13,035 microfiche. Approximately 6 cubic feet of manuscript records are added to this file and placed on 1,320 microfiche annually.

FORMAT: Hourly observations on daily MF7-60 forms. Observations are taken about 35 minutes past the hour throughout the day and night and more frequent during severe weather. Additional special observations are taken in case of aircraft accidents.

FILE STRUCTURE: Manuscript records are placed on microfiche to service requests for these radar weather observations and filed in the NCDC archives. Prior to 1982 a microfiche may contain more than one month's data. Since January 1, 1982, one station's data for one month are on one microfiche.

CONTENTS: The MF7-60 forms provide for the entry of detailed information about the character, type, and intensity of precipitation, direction and distance of the echoes from the station, movement of echoes, maximum height of tops of cells, and pertinent remarks.

ABSTRACT: The primary source of the manuscript records in this file are from approximately 110 National Weather Service radar stations located throughout the United States. There are 59 radar stations currently who take radar photographs of the Plan Position Indicator (PPI) scope on 16-millimeter microfilm and record radar weather observations. There are an additional 51 radar stations who only observe and record radar weather observations.

This file is available for purchase from the NCDC.

FILE TAG: FA00329.

FILE NAME: RECORD OF EVAPORATION AND CLIMATOLOGICAL  
OBSERVATIONS-RECORD OF RIVER STAGE AND CLIMATOLOGICAL  
OBSERVATIONS.

TIME PERIOD: Early 1800's through the present (updated monthly).

GEOGRAPHIC COVERAGE: Selected stations; United States, U. S. Pacific Islands,  
U. S. Virgin Islands, and Puerto Rico.

FILE SIZE: 3,872 cubic feet of manuscript records; 84,150  
microfiche.

FORMAT: Daily observations on monthly manuscript forms.

FILE STRUCTURE: Manuscript records for approximately 23,000 cooperative  
observer stations have been placed on microfiche from  
the beginning of record through 1984. These manuscript  
records and microfiche, and subsequent manuscript  
records, are filed in the NCDC archives. In addition,  
all daily and monthly recorded data, except river  
stages, are available in magnetic tape TD-3200 and  
TD-3220 files and published in CLIMATOLOGICAL DATA.

CONTENTS: The major parameters that make up this file are daily  
recordings of maximum, minimum, and average temperatures  
(Deg. F), precipitation, snowfall, and snowdepth (in.),  
and river stage (height in feet above or below zero  
gage), or, wind movement (miles), evaporation (in.), and  
maximum and minimum temperature (Deg. F) of the  
evaporation pan water.

ABSTRACT: Currently, there are approximately 8,000 active  
cooperative observer stations who send their manuscript  
records to the NCDC for filing in the archives. There  
are, however, data in this file for approximately 23,000  
cooperative observer stations for various years. Most  
cooperative observers are State Universities, State or  
Federal Agencies, or private individuals whose station  
is managed and maintained by the National Weather  
Service. Each cooperative observer station may record  
only one element (e.g. precipitation) or a combination  
of elements.

This file is available for purchase from the NCDC.

FILE TAG: FA00350.

FILE NAME: SHIP WEATHER OBSERVATIONS.

TIME PERIOD: 1800 through the present (updated monthly).

GEOGRAPHIC COVERAGE: Global.

FILE SIZE: 2700 cubic feet of manuscript records, 250 microfiche.

FORMAT: 3-hourly or 6-hourly observations.

FILE STRUCTURE: The historical records from 1800 through 1955 are filed in the National Archives, East Point, Georgia. Subsequent records are filed in the NCDC archives. Marine surface weather observations for "fixed" Ocean Weather Stations are included in this file. They are available on microfiche and filed in the NCDC archives from 1953 through 1974. In addition, the data from this file are included in magnetic tape TD-1129 and TD-9760 files.

CONTENTS: The major parameters presented are latitude, longitude, date, time, total cloud amount (coded), wind direction (36 points), wind speed (knots), visibility (coded), present weather (type, coded), sea level pressure (MB), dry bulb temperature (Deg. C) dew point temperature (Deg. C), wet bulb temperature (Deg. C), sea surface temperature (Deg. C), wind waves (period in seconds, height in half meters), and swell (direction in tens of degrees, period coded, and height in half meters).

ABSTRACT: The primary source of manuscript records in this file are from ships (commercial and military) operated by the United States. Records from ships operated by other countries are also received on an exchange basis, however, there is a time lag in the receipt of these records. Related files are magnetic tape TD-1129, TD-6105 and TD-9760 files.

This file is available for purchase from the NCDC.

FILE TAG: FA00357.

FILE NAME: SUMMARY OF CONSTANT PRESSURE DATA (WBAN-33)

TIME PERIOD: January 1, 1955 through the present (updated monthly).

GEOGRAPHIC COVERAGE: Selected upper air stations; United States, U. S. Pacific Islands, U. S. Virgin Islands, Puerto Rico, and cooperative stations in Mexico, Central America and South America.

FILE SIZE: 24 cubic feet of computer printouts, 588 microfiche.

FORMAT: Computed constant pressure data for 0000 and 1200 GMT. Prior to 1957, the hours summarized were 0300 and 1500 GMT.

FILE STRUCTURE: These computed summaries for the complete period of record, and summaries for the period January 1979 through the present on microfiche, are filed in the NCDC archives.

CONTENTS: The constant pressure levels that have been summarized monthly since January 1961 are: surface, 1000-, 950-, 900-, etc., --- 200-, 175-, 150-, 125-, 100-, 80-, 70-, 60-, 50-, 40-, 30-, 25-, 20-, 15-, 10-, 7-, 5-, 4-, 3-, and 2-millibars. The major parameters computed and presented twice daily for each constant pressure level are; height (geopotential meters), temperature (Deg. C), relative humidity (%), wind direction (36 points), and wind speed (meters per second).

ABSTRACT: The primary source of upper air data used to produce this file is magnetic tape TD-6201 file. The period of record for which these summaries have been prepared varies with each station. Most cooperative stations are summarized for 1200 GMT only.

This file is available for purchase from the NCDC.

FILE TAG: FA00371.

FILE NAME: SUMMARY OF DAY FORM 5670.

TIME PERIOD: January 1949 through the present (updated monthly).

GEOGRAPHIC COVERAGE: Selected stations; United States, U. S. Pacific Islands, U. S. Virgin Islands, and Puerto Rico.

FILE SIZE: 72 cubic feet of forms.

FORMAT: Monthly computer generated forms of daily data.

FILE STRUCTURE: The SUMMARY OF DAY FORM 5670 for each selected station historically, is filed in the NCDC archives.

CONTENTS: The major parameters that are included in this file, where available, are; daily maximum, minimum, and average temperatures (Deg. F), heating and cooling degree days (base 65 Deg. F), precipitation (in.), snow (fall, on ground, and water equivalent in inches), wind (speed in knots and direction to 36 points), sky cover (10ths), occurrences of weather types, peak gust (direction to 36 points, speed in knots) and time; and monthly totals, averages, and departures from normal.

ABSTRACT: The SUMMARY OF DAY FORM 5670 is a by-product of the NCDC quality control program. It is currently generated for 421 National Weather Service and Federal Aviation Administration stations and 56 U. S. Navy worldwide stations. The total number of stations for which this form was generated, however, varies historically from month to month and year to year. Data presented on these forms are also available in TD-3200, TD-3210, and TD-3220 magnetic tape files and CLIMATOLOGICAL DATA and LOCAL CLIMATOLOGICAL DATA publication files. The source of data utilized to produce this file is the summary of the day included in the RECORD OF SURFACE WEATHER OBSERVATIONS form MF1-10, MF1-10B, or MF1-10C.

This file is available for purchase from the NCDC.



FILE TAG: FA00355.

FILE NAME: SURFACE WEATHER OBSERVATIONS.

TIME PERIOD: January 1, 1930 through the present (updated monthly).

GEOGRAPHIC COVERAGE: Selected stations; United States, U. S. Pacific Islands, U. S. Virgin Islands, Puerto Rico, and worldwide U. S. Military Installations.

FILE SIZE: 14,196 cubic feet of manuscript records, 327,400 microfiche.

FORMAT: Hourly or 3-hourly aviation weather observations during hours of station operation, and summary of the day data on daily forms.

FILE STRUCTURE: Historical manuscript records previous to January 1, 1945 are filed in the National Archives in East Point, Georgia. Subsequent manuscript records and microfiche of these records are filed in the NCDC archives. Hourly and/or 3-hourly data and summary of the day data that are entered on these manuscript records are also available on magnetic tape TD-3280 and TD-3210 files subsequently for selected stations. In addition, these data are published as LOCAL CLIMATOLOGICAL data for approximately 284 stations.

CONTENTS: The major parameters that make up this file are:

1. Hourly or 3-hourly aviation weather observations consisting of ceiling (feet), visibility (statute miles), weather (type), sea level pressure (MB), temperature (Deg. F), dew point temperature (Deg. F), wind direction (36 points), wind speed (knots), wind gusts (knots), altimeter setting (in. Hg), station pressure (in. Hg), relative humidity (%), total sky cover and total opaque sky cover (10ths).
2. Summary of the Day data consisting of the daily maximum and minimum temperatures (Deg. F), total precipitation (in.), snowfall (in.), snowdepth (in.), peak gust (speed in knots, direction to 16 points and local time), average sky cover sunrise to sunset and midnight to midnight (10ths) and beginning and ending times of various weather types (local time). Not all of the above parameters are available for each airport location.

ABSTRACT: The primary source of the manuscript records in this file is from National Weather Service 1st Order and 2nd Order stations, Federal Aviation Administration stations, and U. S. Air Force, Army, Navy, and Marine Corps stations. The period of record filed in the NCDC

archives varies for each station. The INDEX OF ORIGINAL SURFACE WEATHER RECORDS provides a listing of United States stations, and the years, for which manuscript records are available through 1981.

In addition to magnetic tape TD-3280 and TD-3210 files, other related magnetic tape files are TD-3200, TD-3220, TD-3290, TD-3292, TD-6104, and TD-9685.

This file is available for purchase from the NCDC.

FILE TAG: FA00387.

FILE NAME: TRIPLE REGISTER CHARTS.

TIME PERIOD: January 1, 1872 through the present (updated monthly).

GEOGRAPHIC COVERAGE: Selected stations, United States and Puerto Rico.

FILE SIZE: 6,952 cubic feet of roll charts.

FORMAT: Continuous recording roll charts.

FILE STRUCTURE: Historical roll charts from 1872 through 1979 are filed in the National Archives in East Point, Georgia. Subsequent roll charts are filed in the NCDC archives.

CONTENTS: Continuous recording of wind direction (8 points), and speed (mph), sunshine (minutes), and precipitation (in.).

ABSTRACT: Triple register charts are sent to the NCDC to be placed in the archives primarily by National Weather Service stations and offices. The INDEX OF ORIGINAL SURFACE WEATHER RECORDS by State provides a listing of the stations or offices for which these triple register charts are available from 1872 through 1981.

This file is available for purchase from the NCDC.

FILE TAG: FA00389.

FILE NAME: WEIGHING RAIN GAGE RECORDER CHARTS.

TIME PERIOD: January 1, 1895 through the present (updated monthly).

GEOGRAPHIC COVERAGE: Selected stations; United States, U. S. Pacific Islands, U. S. Virgin Islands, and Puerto Rico.

FILE SIZE: 504 cubic feet of recorder charts, 1584 reels of 16-millimeter microfilm, 3867 reels of 35-millimeter microfilm and 10,230 microfiche.

FORMAT: Continuous recording charts.

FILE STRUCTURE: Historical weighing rain gage recorder charts are filed in the National Archives in East Point, Georgia from January 1, 1895 through December 31, 1980. Subsequent charts are filed in the NCDC archives. These charts are also on microfilm from January 1, 1939 through December 31, 1972 and on microfiche from January 1, 1973 through December 31, 1980.

CONTENTS: Continuous recording of precipitation amounts to one-hundredth inch.

ABSTRACT: Weighing rain gage recorder charts are sent to the NCDC to be filed in the archives primarily from National Weather Service and Cooperative stations and offices.

The data from these charts are contained in related files TD-3200, TD-3210, TD-3220, TD-3240, TD-3260, CLIMATOLOGICAL DATA and HOURLY PRECIPITATION DATA.

This file is available for purchase from the NCDC.

FILE TAG: FA00344.

FILE NAME: UPPER AIR WEATHER OBSERVATIONS.

TIME PERIOD: January 1, 1946 through the present (updated monthly).

GEOGRAPHIC COVERAGE: Selected stations; United States, U. S. Pacific Islands, Puerto Rico and cooperative stations primarily in Mexico, South America, Central America, and the Caribbean Islands.

FILE SIZE: 1,265 cubic feet of manuscript records and mini-computer printouts, 6,025 reels of 35-millimeter microfilm, and 8,055 microfiche.

FORMAT: For most stations, WBAN-31's were utilized from 1946 through 1973 and mini-computer printouts subsequently. The conversion to mini-computer printouts varies with each station and was accomplished generally from 1971 through 1978.

FILE STRUCTURE: The manuscript records (WBAN-31's) were placed on 35-millimeter microfilm from 1939 through 1973 and the mini-computer prints on microfiche from 1974 through the present. All of these forms are filed in the NCDC archives. The great majority of data on the forms in this file are also in magnetic tape TD-6201 file.

CONTENTS: The major parameters presented in this file are pressure (mb), height of pressure level (meters above sea level), temperature (Deg. C), dew point temperature depression (Deg. C) or relative humidity (%), wind direction (whole degrees where 360 is North), and wind speed (kts).

ABSTRACT: There are currently 130 stations, of which 33 are cooperative upper air stations, who send their mini-computer printouts to the NCDC for filing in the archives. Whereas United States upper air observations are taken twice daily at 0000 and 1200 GMT, most cooperative upper air stations take a daily observation at 1200 GMT. The number of stations whose upper air observations are in this file varies from year to year. Although there are upper air data in this file from 1939 through 1945, the number of recording stations during those years were extremely few.

In addition to magnetic tape TD-6201 file, other related magnetic tape files are TD-6103, TD-6202, and TD-6203.

This file is available for purchase from the NCDC.

FILE TAG: FA00388.

FILE NAME: WIND GUST RECORDER CHARTS.

TIME PERIOD: January 1, 1950 through the present (updated monthly).

GEOGRAPHIC COVERAGE: Selected stations; United States, U.S. Pacific Islands, and Puerto Rico.

FILE SIZE: 5,259 cubic feet of roll charts.

FORMAT: Continuous recording charts.

FILE STRUCTURE: The historical wind gust recorder charts are filed in the NCDC archives by station.

CONTENTS: Continuous wind speed (mph).

ABSTRACT: The primary source of these wind gust recorder charts is from approximately 250 National Weather Service stations that are located at major metropolitan airports. The INDEX OF ORIGINAL SURFACE WEATHER RECORDS by State provides a listing of those stations for which these charts are filed in the NCDC archives from 1950 through 1981.

This file is available for purchase from the NCDC.

FILE TAG: FA00060.

FILE NAME: CLIMATOLOGICAL RECORD BOOK.

TIME PERIOD: January 1, 1871 - December 31, 1970.

GEOGRAPHIC COVERAGE: National Weather Service stations and offices; United States, U. S. Pacific Islands, U. S. Virgin Islands, and Puerto Rico.

FILE SIZE: 345 reels of 35-millimeter microfilm.

FORMAT: Daily, monthly, seasonal, and annual averages, extremes, or occurrences. Most data are sequential by period of record 1871-1910, 1911-1930, 1931-1950, and 1951-1970.

FILE STRUCTURE: Volumes one (1871-1910), two (1911-1930), and three (1931-1950) of each station's record book are on one reel of 35-millimeter microfilm; volume four (1951-1970) is on a second reel of 35-millimeter microfilm. More than one station's record book are on the same reel of microfilm. These microfilm are filed in the NCDC archives. The station's and the volumes available for each station are listed following the ABSTRACT.

CONTENTS: Volume One, 1871-1910

Instructions  
Location of Office  
Pressure - Highest and Lowest  
Pressure - Mean Station and Absolute Monthly Range  
Temperature - Monthly Mean and Departure from Normal  
Temperature - Monthly Mean Maximum and Minimum  
Temperature - Absolute Maximum and Date  
Temperature - Absolute Minimum and Date  
Temperature - Greatest Daily Range, Mean Daily Range  
Temperature - Absolute Monthly Range, Mean Variability  
Temperature - Lowest Maximum, Highest Minimum  
Temperature - No. of days with Maximum 32 Deg. F or Below, 90 Deg. F or Above  
Temperature - No. of days with Minimum 32 Deg. F or Below, 0 Deg. F or Below  
Relative Humidity - Mean 7 a.m., 7 p.m.  
Precipitation and Departure from Normal  
Precipitation - Greatest in 24 hours  
Precipitation - One inch an Hour and Over  
Precipitation - No. of Days with .01 inch or Over; 0.4 inch or Over  
Precipitation - No. of Days with .25 inch or more; 1.00 inch or more  
Precipitation - Total Snowfall in inches and tenths; No. of Days with Snow  
Precipitation - Greatest Snowfall in 24 hours (inches and tenths), and Depth on Ground at End of Month

Precipitation - Greatest Depth of Snow on Ground, and Date  
 Wind - Total Movement Miles  
 Wind - Prevailing Direction and Average Hourly Velocity  
 Wind - Maximum Velocity, Direction and Date  
 Weather - Hours of Sunshine and Percentage of Possible  
 Weather - Average Cloudiness  
 Weather - No. of Days Clear, Partly Cloudy, and Cloudy  
 Weather - No. of Days with Fog, Hail, Thunderstorms  
 Weather - No. of Days with Auroras, Solar Halos, Lunar Halos  
 Daily Mean Temperature (whole degrees)  
 Daily Maximum Temperature (whole degrees)  
 Daily Minimum Temperature (whole degrees)  
 Daily Precipitation (inches and hundredths)  
 Daily Snowfall (inches and tenths)  
 Mean Hourly Pressure (inches and hundredths)  
 Mean Hourly Temperature (to tenths)  
 Mean Hourly Wind Velocity (miles and tenths per hour)  
 Prevailing Wind Direction  
 Hourly Sunshine (in percentages)  
 Instrumental Equipment.

Volume Two, 1911-1930

Instructions

Location of Office  
 Pressure - Highest and Lowest  
 Pressure - Mean Station and Absolute Monthly Range  
 Temperature - Monthly Mean and Departure from Normal  
 Temperature - Monthly Mean Maximum and Minimum  
 Temperature - Absolute Maximum and Date  
 Temperature - Absolute Minimum and Date  
 Temperature - Greatest Daily Range; Mean Daily Range  
 Temperature - Absolute Monthly Range; Mean Variability  
 Temperature - Lowest Maximum, Highest Minimum  
 Temperature - No. Days with Maximum 32 Deg. F or Below, 90 Deg. F or Above  
 Temperature - No. Days with Minimum 32 Deg. F or Below, 0 Deg. F or Below  
 Relative Humidity - Mean 7 a.m., 7 p.m.  
 Frost - Latest Killing in Spring - Earliest Killing in Autumn - Growing Season  
 Precipitation and Departure from Normal  
 Precipitation - Greatest in 24 hours; Amount and Date  
 Precipitation - One inch an Hour and Over, Amount and Date  
 Precipitation - No. of Days with .01 inch or Over; .04 inch or Over  
 Precipitation - No. Days with .25 inch or more; 1.00 inch or more  
 Precipitation - Total Snowfall, in inches and tenths; No. of Days with Snow  
 Precipitation - Greatest Snowfall in 24 hours and Depth on Ground at End of Month



Precipitation - Greatest Depth of Snow on Ground and Date

Wind - Total Movement, Miles

Wind - Prevailing Direction and Average Hourly Velocity

Wind - Maximum Velocity, Direction and Date

Weather - Hours of Sunshine and Percentage of Possible

Weather - Average Cloudiness 7 a.m. - 7 p.m.

Weather - No. of Days Clear, Partly Cloudy, and Cloudy

Weather - No. of Days with Fog, Hail, Thunderstorms

Weather - No. of Days with Auroras, Solar Halos, Lunar Halos

Daily Mean Temperature, January-December

Daily Maximum Temperature, January-December

Daily Minimum Temperature, January-December

Daily Precipitation, January-December

Daily Snowfall, January-December

Mean Hourly Pressure, January-December

Mean Hourly Wind Velocity, January-December

Prevailing Wind Direction, January-December

Hourly Sunshine January-December

Instrumental Equipment

Remarks on Exposure of Instrument Shelter

Remarks on Exposure of Rain Gage

Volume Three, 1931-1950

Instructions

Location of Office

Pressure - Highest and Lowest

Pressure - Mean Station and Absolute Monthly Range

Temperature - Monthly Mean and Departure from Normal

Temperature - Monthly Mean Maximum and Minimum

Temperature - Absolute Maximum and Date

Temperature - Absolute Minimum and Date

Temperature - Greatest Daily Range; Mean Daily Range

Temperature - Absolute Monthly Range; Mean Variability

Temperature - Lowest Maximum, Highest Minimum

Temperature - No. of Days with Maximum 32 Deg. F or Below, 90 Deg. F or Above

Percent of Relative Humidity - Mean 7 a.m., noon, 7 p.m.

Frost - Latest killing in Spring - Earliest killing in Autumn, Growing Season

Precipitation and Departure from Normal

Precipitation - Greatest in 24 hours, Amount and Date

Maximum Precipitation

Precipitation - No. of Days with .01 inch or over; .04 inch or over

Precipitation - No. of Days with .25 inch or more; 1.00 inch or more

Precipitation - Total Snowfall, in inches and tenths; No. of Days with Snow (0.1 inch or more)

Precipitation - Greatest Snowfall in any 24 hours and Depth on Ground at End of Month

Precipitation - Greatest Depth of Snow on Ground and Date

Wind - Prevailing Direction and Average Hourly Velocity  
 Wind - Maximum Velocity, Direction, and Date  
 Weather - Hours of Sunshine and Percentage of Possible  
 Weather - Average Cloudiness 7 a.m., noon, 7 p.m.  
 Weather - No. of Days Clear, Partly Cloudy, Cloudy  
 Weather - No. of Days with Light and Dense Fog  
 Weather - No. of Days with Hail and Thunderstorms  
 Weather - No. of Days with Auroras, Solar Halos, Lunar Halos  
 Wind - Average Hourly Velocity and Total Hours, January-December  
 Visibility, January-December  
 Daily Mean Temperature, January-December  
 Daily Maximum Temperature, January-December  
 Daily Minimum Temperature, January-December  
 Daily Precipitation, January-December  
 Daily Snowfall, January-December  
 Mean Hourly Pressure, January-December  
 Mean Hourly Temperature, January-December  
 Mean Hourly Wind Velocity, January-December  
 Prevailing Hourly Wind Direction, January-December  
 Hourly Sunshine, January-December  
 Averages, Extremes, and Total for the Year  
 Instrumental Equipment  
 Remarks on Exposures of Wind Equipment

#### Volume Four, 1951-1970

Instructions  
 Location of Office  
 Pressure - Highest and Lowest  
 Pressure - Average Station  
 Temperature - Monthly Average and Departure from Normal  
 Temperature - Monthly Average Maximum and Minimum  
 Temperature - Highest and Date  
 Temperature - Lowest and Date  
 Temperature - Highest Daily Average and Date  
 Temperature - Lowest Daily Average and Date  
 Temperature - No. of Days with Maximum 32 Deg. F or Below, 90 Deg. F or Above  
 Temperature - No. of Days with Minimum 32 Deg. F or Below, 0 Deg. F or Below  
 Monthly and Seasonal Heating-Degree Days and Departures  
 Freeze Data  
 Precipitation and Departure from Normal  
 Precipitation - Greatest in 24 hours  
 Precipitation - Excessive  
 Precipitation - Maximum  
 Precipitation - No. of Days with .01 inch or Over; .10 inch or Over  
 Precipitation - No. of Days with .50 inch or Over, 1.00 inch or Over  
 Precipitation - Monthly and Seasonal Snowfall; No. of Days 0.1 inch or more  
 Precipitation - Number of Days with Snowfall 1.0 and 3.0 Inches

Precipitation - Greatest Snowfall in 24 hours; Greatest  
Depth on Ground  
Wind - Prevailing Direction and Average Hourly Speed  
Wind - Fastest Mile or Peak Gust, Direction, and Date  
Weather - Hours of Sunshine and Percent of Possible  
Weather - Number of Days Clear, Partly Cloudy, and  
Cloudy  
Weather - Number of Days with Heavy Fog; Heavy Dust or  
Sandstorm; Heavy Smoke, Haze, or both  
Weather - Number of Days with Hail and Thunderstorms  
Averages - 6-Hourly Observations of Sky Cover, Pressure,  
Psychrometric Data, and Wind  
Daily Mean Temperature, January-December  
Daily Maximum Temperature, January-December  
Daily Minimum Temperature, January-December  
Daily Precipitation, January-December  
Daily Snowfall, January-December

**ABSTRACT:**

CLIMATOLOGICAL RECORD BOOKS are prepared and maintained by National Weather Service stations and offices. The first four volumes have been placed on 35-millimeter microfilm. Volume 5 will contain data for the years 1971-1990 and will be placed on microfilm in 1991. These books present detailed climatological data for an individual station, or office, for a long period of years. Data are arranged by element by years. The first volume, 1871-1910, was prepared for 202 stations although not all stations had the full period of record. The second volume, 1911-1930, is available for 228 stations; the third volume, 1931-1950, is available for 247 stations; and the fourth volume, 1951-1970, is available for 324 stations.

This file is available for purchase from the NCDC.

## LIST OF STATIONS MAINTAINING CLIMATOLOGICAL RECORD BOOKS

<u>STATION</u>	<u>1871- 1910</u>	<u>1911- 1930</u>	<u>1931- 1950</u>	<u>1951- 1970</u>
Anchorage, AK	-	X	X	X
Annette Isl., AK	-	-	X	X
Barrow, AK	-	-	X	X
Barter Island, AK	-	-	-	X
Bethel, AK	-	-	X	X
Cold Bay, AK	-	-	-	X
Cordova, AK	-	-	X	X
Fairbanks, AK	-	X	X	X
Galena, AK	-	-	-	X
Gambell, AK	-	-	X	X
Juneau, AK	-	X	X	X
Ketchikan, AK	-	-	X	-
King Salmon, AK	-	-	-	X
Kotzebue, AK	-	-	X	X
McGrath, AK	-	-	X	X
Nome, AK	-	-	X	X
Northway, AK	-	-	X	X
St. Paul Is., AK	-	-	-	X
Shemya, AK	-	-	-	X
Umiat, AK	-	-	-	X
Wales, AK	-	-	-	X
Yakutat, AK	-	-	-	X
Anniston, AL	X	X	-	-
Birmingham, AL	X	X	X	X
Huntsville, AL	-	-	-	X
Mobile, AL	X	X	X	X
Montgomery, AL	X	X	X	X
Bentonville, AR	X	X	X	-
Brinkley, AR	-	-	X	-
Fort Smith, AR	X	X	X	X
Little Rock, AR	X	X	X	X
Texarkana, AR	-	X	X	X
Flagstaff, AZ	X	X	X	X
Payson, AZ	-	-	-	X
Phoenix, AZ	X	X	X	X
Prescott, AZ	-	-	-	X
Tucson, AZ	-	-	X	X
Winslow, AZ	-	-	-	X
Yuma, AZ	X	X	X	X
Bakersfield, CA	-	-	-	X
Beaumont, CA	-	-	-	X
Bishop, CA	-	-	-	X
Blue Canyon, CA	-	-	X	X
Eureka, CA	X	X	X	X
Fresno, CA	X	X	X	X

<u>STATION</u>	<u>1871- 1910</u>	<u>1911- 1930</u>	<u>1931- 1950</u>	<u>1951- 1970</u>
Independence, CA	X	X	-	-
Long Beach, CA	-	-	-	X
Los Angeles, CA	X	X	X	X
Mount Shasta, CA	-	-	-	X
Mount Tamalpais, CA	X	X	-	-
Oakland, CA	-	-	X	X
Point Reyes, CA	X	X	-	-
Red Bluff, CA	X	X	X	X
Redding, CA	X	X	-	-
Sacramento, CA	X	X	X	X
Sandberg, CA	-	-	-	X
San Diego, CA	X	X	X	X
San Francisco, CA	X	X	X	X
San Jose, CA	X	X	-	-
San Luis Obispo, CA	X	X	-	-
Santa Catalina, CA	-	-	-	X
Santa Maria, CA	-	-	X	X
S. E. Farallon Is., CA	X	X	-	-
Alamosa, CO	-	-	-	X
Colorado Springs, CO	-	-	-	X
Denver, CO	X	X	X	X
Durango, CO	X	X	-	-
Grand Junction, CO	X	X	X	X
Pueblo, CO	X	X	X	X
Bridgeport, CT	-	-	-	X
Hartford, CT	X	X	X	X
New Haven, CT	X	X	X	X
Washington, DC	X	X	X	X
Wilmington, DE	-	-	-	X
Apalachicola, FL	-	X	X	X
Daytona Beach, FL	-	-	-	X
Fort Myers, FL	-	-	-	X
Jacksonville, FL	X	X	X	X
Jupiter, FL	X	X	-	-
Key West, FL	X	X	X	X
Lakeland, FL	-	-	-	X
Melbourne, FL	-	-	-	X
Miami, FL	-	X	X	X
Orlando, FL	-	-	-	X
Pensacola, FL	X	X	X	X
Sand Key, FL	-	X	-	-
Tallahassee, FL	-	-	-	X
Tampa, FL	X	X	X	X
West Palm Beach, FL	-	-	-	X
Albany, GA	-	-	-	X
Athens, GA	-	-	-	X
Atlanta, GA	X	X	X	X

<u>STATION</u>	<u>1871- 1910</u>	<u>1911- 1930</u>	<u>1931- 1950</u>	<u>1951- 1970</u>
Augusta, GA	X	X	X	X
Columbus, GA	-	-	-	X
Macon, GA	X	X	X	X
Rome, GA	-	-	-	X
Savannah, GA	X	X	X	X
Thomasville, GA	X	X	X	X
Valdosta, GA	-	-	-	X
Hilo, HI	-	-	-	X
Honolulu, HI	X	X	X	X
Lihue, HI	-	-	-	X
Punahou, HI	X	-	-	-
Burlington, IA	X	X	X	X
Charles City, IA	X	X	X	-
Davenport, IA	X	X	X	X
Des Moines, IA	X	X	X	X
Dubuque, IA	X	X	X	X
Keokuk, IA	X	X	X	-
Sioux City, IA	X	X	X	X
Waterloo, IA	-	-	-	X
Boise, ID	X	X	X	X
Lewiston, ID	X	X	X	X
Pocatello, ID	X	X	X	X
Cairo, IL	X	X	X	X
Chicago, IL	X	X	X	X
Joliet, IL	-	-	-	X
Moline, IL	-	-	X	X
Peoria, IL	X	X	X	X
Rockford, IL	-	-	-	X
Springfield, IL	X	X	X	X
Evansville, IN	X	X	X	X
Fort Wayne, IN	-	X	X	X
Indianapolis, IN	X	X	X	X
Royal Center, IN	-	X	X	-
South Bend, IN	-	-	-	X
Terre Haute, IN	X	X	X	X
Concordia, KS	X	X	X	X
Dodge City, KS	X	X	X	X
Goodland, KS	-	X	X	X
Iola, KS	X	X	X	-
Topeka, KS	X	X	X	X
Wichita, KS	X	X	X	X
Bowling Green, KY	-	-	-	X
Lexington, KY	X	X	X	X
Louisville, KY	X	X	X	X

<u>STATION</u>	<u>1871- 1910</u>	<u>1911- 1930</u>	<u>1931- 1950</u>	<u>1951- 1970</u>
Alexandria, LA	-	-	-	X
Baton Rouge, LA	-	-	-	X
Lake Charles, LA	-	-	X	X
New Orleans, LA	X	X	X	X
Shreveport, LA	X	X	X	X
Boston, MA	X	X	X	X
Nantucket, MA	X	X	X	X
Pittsfield, MA	-	-	-	X
Worcester, MA	-	-	-	X
Baltimore, MD	X	X	X	X
Frederick, MD	-	-	-	X
Caribou, ME	-	-	X	X
Eastport, ME	X	X	X	X
Portland, ME	X	X	X	X
Alpena, MI	X	X	X	X
Detroit, MI	X	X	X	X
Escanaba, MI	X	X	X	X
Flint, MI	-	-	-	X
Grand Haven, MI	X	X	-	-
Grand Rapids, MI	X	X	X	X
Houghton, MI	X	X	-	-
Lansing, MI	-	X	X	X
Ludington, MI	-	X	-	-
Marquette, MI	X	X	X	X
Muskegon, MI	-	-	-	X
Port Huron, MI	X	X	-	-
Saginaw, MI	-	X	-	-
Sault Ste. Marie, MI	X	X	X	X
Ypsilanti, MI	-	-	-	X
Duluth, MN	X	X	X	X
International Falls, MN	-	-	-	X
Minneapolis, MN	X	X	X	X
Rochester, MN	X	X	X	X
St. Cloud, MN	-	-	-	X
St, Paul, MN	X	X	X	X
Columbia, MO	X	X	X	X
Hannibal, MO	X	X	X	-
Kansas City, MO	X	X	X	X
St. Joseph, MO	-	X	X	X
St. Louis, MO	X	X	X	X
Springfield, MO	X	X	X	X
Jackson, MS	X	X	X	X
Meridian, MS	X	X	X	X
Vicksburg, MS	X	X	X	X

<u>STATION</u>	<u>1871- 1910</u>	<u>1911- 1930</u>	<u>1931- 1950</u>	<u>1951- 1970</u>
Billings, MT	-	-	X	X
Butte, MT	-	-	-	X
Glasgow, MT	-	-	-	X
Great Falls, MT	X	X	X	X
Havre, MT	X	X	X	X
Helena, MT	X	X	X	X
Kalispell, MT	X	X	X	X
Miles City, MT	X	X	X	-
Missoula, MT	X	X	X	X
Asheville, NC	X	X	X	X
Charlotte, NC	X	X	X	X
Greensboro, NC	-	X	X	X
Hatteras, NC	X	X	X	X
Raleigh, NC	X	X	X	X
Wilmington, NC	X	X	X	X
Winston-Salem, NC	-	-	-	X
Bismarck, ND	X	X	X	X
Devils Lake, ND	X	X	X	X
Ellendale, ND	-	X	X	-
Fargo, ND	X	X	X	X
Williston, ND	X	X	X	X
Grand Island, NE	X	X	X	X
Lincoln, NE	X	X	X	X
Norfolk, NE	-	-	X	X
North Platte, NE	X	X	X	X
Omaha, NE	X	X	X	X
Scotts Bluff, NE	X	X	X	X
Valentine, NE	X	X	X	X
Concord, NH	X	X	X	X
Atlantic City, NJ	X	X	X	X
Cape May, NJ	-	X	X	-
Newark, NJ	-	-	X	X
Sandy Hook, NJ	-	X	X	-
Trenton, NJ	X	X	X	X
Albuquerque, NM	X	X	X	X
Clayton, NM	-	-	X	X
Raton, NM	-	-	X	X
Roswell, NM	X	X	X	X
Santa Fe, NM	X	X	X	-
Silver City, NM	-	-	-	X
Carson City, NV	X	-	-	-
Elko, NV	-	-	-	X
Ely, NV	-	-	X	X
Las Vegas, NV	-	-	X	X



<u>STATION</u>	<u>1871- 1910</u>	<u>1911- 1930</u>	<u>1931- 1950</u>	<u>1951- 1970</u>
Reno, NV	X	X	X	X
Tonopah, NV	X	X	-	-
Winnemucca, NV	X	X	X	X
Albany, NY	X	X	X	X
Bear Mountain, NY	-	-	-	X
Binghamton, NY	X	X	X	X
Buffalo, NY	X	X	X	X
Canton, NY	X	X	X	-
Ithaca, NY	X	X	X	-
New York, NY	X	X	X	X
Oswego, NY	X	X	X	X
Rochester, NY	X	X	X	X
Syracuse, NY	X	X	X	X
Akron, OH	X	X	X	X
Cincinnati, OH	X	X	X	X
Cleveland, OH	-	-	-	X
Columbus, OH	X	X	X	X
Dayton, OH	X	X	X	X
Mansfield, OH	-	-	-	X
Sandusky, OH	X	X	X	X
Toledo, OH	X	X	X	X
Youngstown, OH	-	-	X	X
Broken Arrow, OK	-	X	X	-
Oklahoma City, OK	X	X	X	X
Tulsa, OK	-	-	X	X
Waynoka, OK	-	-	X	-
Astoria, OR	-	-	-	X
Baker, OR	X	X	X	X
Burns, OR	-	-	-	X
Eugene, OR	-	-	X	X
Meacham, OR	-	-	-	X
Medford, OR	-	X	X	X
Pendleton, OR	-	-	-	X
Portland, OR	X	X	X	X
Roseburg, OR	X	X	X	X
Salem, OR	-	-	-	X
Sexton Summit, OR	-	-	-	X
Troutdale, OR	-	-	-	X
Allentown, PA	-	-	X	X
Bellefonte, PA	-	X	-	-
Curwensville, PA	-	-	-	X
Erie, PA	X	X	X	X
Harrisburg, PA	X	X	X	X
Kylertown, PA	-	-	X	-
Lancaster, PA	-	-	-	X
Park Place, PA	-	-	-	X
Philadelphia, PA	X	X	X	X
Phillipsburg, PA	-	-	X	-

<u>STATION</u>	<u>1871- 1910</u>	<u>1911- 1930</u>	<u>1931- 1950</u>	<u>1951- 1970</u>
Pittsburgh, PA	X	X	X	X
Reading, PA	X	X	X	X
Scranton, PA	X	X	X	X
Williamsport, PA	-	-	-	X
Block Island, RI	X	X	X	X
Providence, RI	X	X	X	X
Charleston, SC	X	X	X	X
Columbia, SC	X	X	X	X
Due West, SC	-	X	X	-
Florence, SC	-	-	-	X
Greenville, SC	-	X	X	X
Spartanburg, SC	-	-	-	X
Huron, SD	X	X	X	X
Pierre, SD	X	X	X	-
Rapid City, SD	X	X	X	X
Sioux Falls, SD	-	-	-	X
Yankton, SD	X	X	X	-
Bristol, TN	-	-	-	X
Chattanooga, TN	X	X	X	X
Knoxville, TN	X	X	X	X
Memphis, TN	X	X	X	X
Nashville, TN	X	X	X	X
Abilene, TX	X	X	X	X
Amarillo, TX	X	X	X	X
Austin, TX	X	X	X	X
Big Springs, TX	X	X	X	X
Brownsville, TX	-	X	X	X
Corpus Christi, TX	X	X	X	X
Dallas, TX	-	X	X	X
Del Rio, TX	X	X	X	X
El Paso, TX	X	X	X	X
Fort Worth, TX	X	X	X	X
Galveston, TX	X	X	X	X
Groesbeck, TX	-	X	-	-
Houston, TX	X	X	X	X
Laredo, TX	-	-	X	X
Lubbock, TX	-	-	X	X
Midland, TX	-	-	-	X
Palestine, TX	X	X	X	X
Port Arthur, TX	-	X	X	X
San Angelo, TX	-	-	-	X
San Antonio, TX	X	X	X	X
Taylor, TX	X	X	X	-
Victoria, TX	-	-	-	X
Waco, TX	-	-	X	X
Wichita Falls, TX	-	-	X	X

<u>STATION</u>	<u>1871- 1910</u>	<u>1911- 1930</u>	<u>1931- 1950</u>	<u>1951- 1970</u>
Milford, UT	-	-	-	X
Modena, UT	X	X	X	
Salt Lake City, UT	X	X	X	X
Wendover, UT	-	-	-	X
Cape Henry, VA	X	X	X	X
Lynchburg, VA	X	X	X	X
Norfolk, VA	X	X	X	X
Richmond, VA	X	X	X	X
Roanoke, VA	-	-	-	X
Urbana, VA	-	-	-	X
Wytheville, VA	X	X	X	-
Burlington, VT	X	X	X	X
North Field, VT	X	X	X	-
Ellensburg, WA	-	-	-	X
Kelso, WA	-	-	-	X
North Head, WA	X	X	X	X
Olympia, WA	-	-	-	X
Port Angeles, WA	-	-	-	X
Seattle, WA	X	X	X	X
Spokane, WA	X	X	X	X
Stampede, WA	-	-	-	X
Stevenson, WA	-	-	-	X
Tacoma, WA	X	X	X	X
Tatoosh Island, WA	X	X	X	X
Walla Walla, WA	X	X	X	X
Yakima, WA	-	-	X	X
Green Bay, WI	X	X	X	X
La Crosse, WI	X	X	X	X
Madison, WI	X	X	X	X
Milwaukee, WI	X	X	X	X
Wausau, WI	-	X	X	-
Charleston, WV	-	-	-	X
Elkins, WV	X	X	X	X
Huntington, WV	-	-	-	X
Parkersburg, WV	X	X	X	X
Petersburg, WV	-	-	-	X
Casper, WY	-	-	X	X
Cheyenne, WY	X	X	X	X
Lander, WY	X	X	X	X
Rock Springs, WY	-	-	-	X
Sheridan, WY	X	X	X	X
Yellowstone Park, WY	X	X	X	-
Canton, Phoenix Is.	-	-	-	X
Johnston Island, Pacific	-	-	-	X
Koror, Trust Territory	-	-	-	X

<u>STATION</u>	<u>1871- 1910</u>	<u>1911- 1930</u>	<u>1931- 1950</u>	<u>1951- 1970</u>
Majuro Atoll, Pacific	-	-	-	X
Midway Island, Pacific	-	-	-	X
Ponape, Trust Territory	-	-	-	X
St. Croix, Virgin Islands	-	-	-	X
San Juan, Puerto Rico	X	X	X	X
Santa Isabel, Puerto Rico	-	-	-	X
Swan Island, West Indies	-	-	-	X
Truk, Trust Territory	-	-	-	X
Wake Island, Pacific	-	-	-	X
Yap, Trust Territory	-	-	-	X

FILE TAG: FA00304.

FILE NAME: COMPOSITE MOISTURE INDEX CHARTS.

TIME PERIOD: January 1, 1962 through the present (updated annually).

GEOGRAPHIC COVERAGE: Conterminous United States, Southern Canada, and Northern Mexico.

FILE SIZE: 24 reels of 35-millimeter microfilm.

FORMAT: Twice daily (0000 and 1200 GMT) computer plotted and hand analyzed four panel charts.

FILE STRUCTURE: This file is placed on one reel of 35-millimeter microfilm annually and filed in the NCDC archives.

CONTENTS:

1. Lifted Index/K Index (Upper-Left Panel); Isopleths of lifted index are drawn for intervals of 4 units for index values of +4 and lower. Areas of index values less than +4 are labeled unstable (u) - areas of high index values above +4 are labeled stable (s). The zero isopleth is drawn as a heavier solid line. Station circles are blacked-in for index values of zero or less. Values of K will be plotted below the values of lifted index for each raob (upper air) station. High values of K are unstable, low values of K (or negative) are stable. No analyses of the K-index are made.
2. Precipitable Water (Upper-Right Panel). The precipitable water is analyzed for intervals of .50 inch with .25 inch (dashed isopleths) used to define the pattern when necessary. Station circles are blacked-in for values of 1.00 inch or greater.
3. Freezing Level (Lower-Left Panel). Several freezing levels may occur on an upper air sounding but only the lowest 3 levels are plotted. The lowest level is plotted below the station circle and the others above. Only the lowest freezing level is analyzed. The surface intersection (32 Deg F) is drawn as a dashed line, and the free-air contours are drawn as solid lines for 4000-foot intervals. The free-air contours are shown as discontinuous where they intersect smoothed terrain contours in the western United States.
4. Average Relative Humidity (Lower-Right Panel). The average relative humidity (surface to 500-millibars) is analyzed for intervals of 10% for humidities 50% and higher. Station circles are blacked-in for humidities of 50% and higher with the average relative humidity (%) plotted above the station circle.

**ABSTRACT:**

These four panel charts are prepared by the National Weather Service, National Meteorological Center as part of their routine analyses and forecasting procedures. They are then sent to the NCDC to be placed on 35-millimeter microfilm and filed in the archives.

This file is available for purchase from the NCDC.

FILE TAG: FA00822.

FILE NAME: 5- TO 60-MINUTE PRECIPITATION FREQUENCY FOR THE EASTERN AND CENTRAL UNITED STATES, NOAA TECHNICAL MEMORANDUM NWS HYDRO-35.

TIME PERIOD: Not time dependent.

GEOGRAPHIC COVERAGE: Eastern and Central United States.

FILE SIZE: One reel of 35-millimeter microfilm.

FORMAT: Isopluvial maps and formulae.

FILE STRUCTURE: This publication is stored on one reel of 35-millimeter microfilm along with U. S. WEATHER BUREAU TECHNICAL PAPER NO. 40 and NOAA ATLAS 2 and filed in the NCDC archives.

CONTENTS: Isopluvial maps of the 37 states from North Dakota to Texas and eastward are presented for 5, 15, and 60 minutes for return periods of 2 and 100 years. Equations are given to derive 10- and 30-minute values from the maps. Equations are also given to compute values for selected return periods between 2 and 100 years.

ABSTRACT: NOAA TECHNICAL MEMORANDUM NWS HYDRO-35 was prepared and published by the National Weather Service in June, 1977. This publication is the latest in a series of precipitation-frequency literature for the United States that began in the 1930's when David L. Yarnell (1935) first published generalized precipitation-frequency maps for durations of 5 minutes to 24 hours at return period of 2 to 100 years.

This publication also supersedes U. S. WEATHER BUREAU TECHNICAL PAPER NO. 40 for the Eastern and Central United States for precipitation-frequency values for durations of one hour or less for return periods of 1 to 100 years.

This file is available for purchase from the NCDC.

FILE TAG: FA00421.

FILE NAME: INITIAL WIND WAVE SEA HEIGHT CHARTS.

TIME PERIOD: January 1, 1979 through the present (updated annually).

GEOGRAPHIC COVERAGE: Northern Hemisphere.

FILE SIZE: 7 reels of 35-millimeter microfilm.

FORMAT: Twice daily, 0000 and 1200 GMT, analyzed Northern Hemisphere charts.

FILE STRUCTURE: The charts in this file are placed on one reel of 35-millimeter microfilm each year and filed in the NCDC archives.

CONTENTS: The heights of wind-waves, swell, and combined seas are depicted by labeled solid contours at 3-foot intervals. Wave periods are plotted in seconds and are enclosed in circles at selected grid points. Wave direction arrows are drawn at the maximum wave centers. Other properties of wave height distribution may be inferred from the depicted significant wave heights (defined as the average height of the highest one-third of the waves). Multiplication by 0.6 gives the mean height of all the waves; by 1.3, the mean height of the highest 10%; and by 1.9, the maximum wave height.

ABSTRACT: These analyzed charts are prepared by the National Weather Service, National Meteorological Center as part of their routine analyses and forecasting procedures. They are then sent to the NCDC to be placed on 35-millimeter microfilm and filed in the archives.

This file is available for purchase from the NCDC.



FILE TAG: FA00313.

FILE NAME: MAXIMUM AND MINIMUM TEMPERATURE CHART (12-Hour).

TIME PERIOD: April 1, 1966 through the present (updated monthly).

GEOGRAPHIC COVERAGE: United States, except Alaska and Hawaii, and Southern Canada.

FILE SIZE: 20 reels of 35-millimeter microfilm.

FORMAT: Computer plotted charts of observed temperatures, one for maximum and one for minimum, during the 12 hours ending at 0000 and 1200 GMT.

FILE STRUCTURE: These computer plotted charts are on one reel of 35-millimeter microfilm for each year and filed in the NCDC archives.

CONTENTS: The data plotted on these charts are from the automatically processed surface data sets which have as their source the SM's (3-hourly synoptic observations) on Service C, with fill-ins from the SA's (hourly aviation observations) on Service A, of the National Weather Service automation of field operations service. The maximum or minimum temperatures (Deg. F) are plotted above the station circles. When both a city office and an airport office send temperatures, the city office temperature is plotted on-station and the airport temperature is in the printed box, labeled AIRPORT TEMP, on the right-hand edge of the chart. The RECORD TEMPS box printed in the Gulf of Mexico is filled in from the fifth group of the SM (Hi-Lo report) for all records reported on each set of data:

Contraction

Type of Temperature Record

HIXFM

Highest eXceeded For the Month

LOXFM

Lowest eXceeded For the Month

Spring temperatures (March, April, May)

HIXSE

Highest eXceeded So Early

LOXSL

Lowest eXceeded So Late

HIESE

Highest Equaled So Early

LOESL

Lowest Equaled So Late

Autumn Temperatures (September, October, November)

HIXSL

Highest eXceeded So Late

LOXSE

Lowest eXceeded So Early

HIESL

Highest Equaled So Late

LOESE

Lowest Equaled So Early

All time records (since observations began)

HI <del>X</del> AT	<u>H</u> ighest <u>e</u> Xceeded for <u>A</u> ll <u>T</u> ime
LO <del>X</del> AT	<u>L</u> owest <u>e</u> Xceeded for <u>A</u> ll <u>T</u> ime
HI <del>E</del> AT	<u>H</u> ighest <u>E</u> qualed for <u>A</u> ll <u>T</u> ime
LO <del>E</del> AT	<u>L</u> owest <u>E</u> qualed for <u>A</u> ll <u>T</u> ime

ABSTRACT:            These charts are prepared by the National Weather Service, National Meteorological Center as part of their routine analyses and forecasting procedures. They are then sent to the NCDC to be placed on 35-millimeter microfilm and filed in the archives.

This file is available for purchase from the NCDC.

FILE TAG: FA00316.

FILE NAME: MEAN RELATIVE HUMIDITY/VERTICAL-VELOCITY CHARTS.

TIME PERIOD: May 1, 1961 through the present (updated semiannually).

GEOGRAPHIC COVERAGE: North America.

FILE SIZE: 49 reels of 35-millimeter microfilm.

FORMAT: Twice daily, 0000 and 1200 GMT, computer-produced initial analysis and 12-, 24-, 36-, and 48-hour prognoses.

FILE STRUCTURE: The charts for 1961 are on one reel of 35-millimeter microfilm - subsequent charts are placed on two reels of microfilm each year; January through June and July through December and filed in the NCDC archives. The VORTICITY CHARTS are included on these reels of microfilm.

CONTENTS: The mean relative humidity is defined for a column through the three lowest layers of the seven-layer (PE) numerical prediction model, from the surface to approximately 490-millibars. Mean relative humidity isopleths are drawn as solid lines for 10, 30, 50, 70 and 90% and are labeled with one-digit hollow numbers. Centers of maximum and minimum relative humidity are depicted by an x within a circle with two-digit hollow numbers. The areas with relative humidity above 70% are hatched.

Vertical velocity isopleths are depicted as solid lines with labels at intervals of 1-microbar per second (1-microbar = .001 millibars). These values may be converted approximately to centimeters per second by multiplying by 1.12. Centers of maximum upward and downward motion are interpolated and printed as + or -, respectively. Vertical velocity values are at the 700-millibar level.

ABSTRACT: These computer-produced charts are prepared by the National Weather Service, National Meteorological Center as part of their routine analyses and forecasting procedures. They are then sent to the NCDC to be placed on 35-millimeter microfilm and filed in the archives.

This file is available for purchase from the NCDC.

FILE TAG: FA00341.

FILE NAME: MISCELLANEOUS PUBLICATIONS.

TIME PERIOD: Variable.

GEOGRAPHIC COVERAGE: Global.

FILE SIZE: 1670 microfiche.

FORMAT: Various.

FILE STRUCTURE: Each publication is on the indicated number of microfiche and filed in the NCDC archives.

CONTENTS:

<u>TITLE</u>	<u>NO. MICROFICHE</u>
Addendum to Wind & Wave Summaries for Selected U. S. Coast Guard Operating Areas	10
American Weather Stories	3
Annual Mean Values of Geomagnetic Components for Selected Observations SE-17 (1940-1973)	2
Annual and Seasonal Precipitation Environmental Protection Technology, Series - August 1977	1
Annual and Seasonal Precipitation Probabilities (1973-1976)	1
Arizona Climate (1931-1972)	9
Bicentennial Guides (all sections)	1
BOMEX -- Permanent Archive	6
Ceiling-Visibility Climatology Study and Systems Enhancement Factors	3
Catalog of Tsunamis in Alaska, Report SE-1	2
Climate and Health (from NOAA Magazine Vol. 6, No. 4, October 1976)	1
Climatic Guide to the Winter Olympics - 1980	1
A Climate Resume of the Mediterranean Sea	6
Climatic Summaries for Major Indian Ocean Ports and Waters	3

Climatic Summaries for Major Seventh Fleet Ports and Waters	3
A Climatological Analysis of Pasquill Stability Categories	1
Climatological Summaries for the Supersonic Aircraft New York-San Francisco Route (1954-1962)	6
Cluster and Pattern Analysis of Normal Mixtures (1971)	2
Distribution of Radiosonde Errors - NOAA Tech. Report EDIS 32 - May 1979.	2
Eastern Snow Conference - Snow Cover Surveys (1972-1979)	6
Environmental Data Sources for the Chesapeake Bay Area NESDIS Environmental Inventory No. 3	2
Environmental Guide for the Mona Passage Area	3
Environmental Guide for the U. S. Gulf Coast	4
Environmental Guide for 7 U. S. Ports	3
Northeast Pacific Environmental Scenario	5
Northeast Pacific Environmental Scenario - Errata	2
Northeast Atlantic Environmental Scenario	4
Bermuda Environmental Scenario	4
A Study of Fog & Stratus for Selected Cold Regions	2
Study of Worldwide Occurrence of Fog, Thunderstorms, Supercooled Low Clouds & Freezing Temperatures (NAVAIR 50-1C-60)	5
Gamma Distribution Bias and Confidence Limits - NOAA Tech. Report EDIS-30 - September 1978	2
A Note on Gamma Distribution Computer Program and Computer Produced Graphs, May 1977	2
A Note on Gamma Distribution Computer Program, March 1980	2
Gamma Distribution Shape Parameter Bias - NOAA Tech. Report EDIS-29, August 1980	1
The Global Weather Experiment World Data Center-A, 1978-1979 Supp. #5 - June 1980	1

Guide to International Data Exchange Through the World Data Centers	3
Guide to Standard Weather Summaries and Climatic Services (NAVAIR 50-1C-534)	4
Human Biometeorology, an Updated Selected Bibliography, NOAA Tech. Memo. NESDIS NCDC-4	1
Human Biometeorology, an Updated Selected Bibliography, 1983	2
Hydrological Bulletin	
Region 1	182
Southeast       Region 2	120
Ohio River     Region 3	221
Missouri       Region 5	170
Region 6	232
Region 7	32
Region 9	109
Region 10	124
Index of Original Surface Weather Records (Complete set).	113
Index - Summarized Wind Data	3
Initial Wind Energy Data Assessment Study - May 1975	3
International Field Year for the Great Lakes - Radiation Measurement Tech. Manual Series #2	2
Key to Meteorological Records Documentation No. 3.151 History of Weather Bureau Wind Measurements	1
Key to Meteorological Records Documentation No. 2.211 History of Weather Bureau Climatological Record Forms for Surface Synoptic and Airway Observations	2
Key to Meteorological Records Documentation No. 2.3 Ocean Station Vessel Meteorological Record Survey Atlantic and Pacific	2
Key to Meteorological Records Documentation No. 2.11 History of Climatological Record Forms 1009 and 612.4	1
Key to Meteorological Records Documentation No. 2.01 History of Verification of Weather Records in the United States Weather Bureau	1

Key to Meteorological Records Documentation No. 1.4 History of Soil Temperature Stations in the United States	1
Key to Meteorological Records Documentation No. 3.021 History of Weather Bureau Barometric Pressure Measurements	1
Key to Meteorological Records Documentation No. 3.031 History of Observational Instructions on Fog	1
Key to Meteorological Records Documentation No. 3.081 Excessive Precipitation Techniques	1
Key to Meteorological Records Documentation No. 3.082 History of Weather Bureau Precipitation Measurements	1
Key to Meteorological Records Documentation No. 3.10 History of Observational Instructions as Applied to Temperature Recordings	1
Key to Meteorological Records Documentation No. 3.12 History of Observational as Applied to Thunderstorms	1
Key to Meteorological Records Documentation No. 3.131 History of Tornado Observations and Data Sources	1
Key to Meteorological Records Documentation No. 4.1 History of Climatological Publications	1
Key to Meteorological Records Documentation No. 5.11 An Annotated Bibliography of Meteorological Observations in the United States 1715-1818	1
Key to Meteorological Records Documentation No. 5.21 History and Catalogue of Upper Air Data for the Period 1946-1960	7
Key to Meteorological Records Documentation No. 6.11 Decadal Census of Weather Stations	7
Marine Climatology Mesa New York Bight Atlas Monography	5
Memorable Hurricanes of the U. S. Since 1873 (1873-1970)	1
Methods of Flow Frequency Analysis	1
Middletown, PA - March 31-April 11, 1979 Winds Aloft (Form 610-12, WBAN-20 PIBAL) for Three Mile Island Incident	1
Middletown, PA - April 1-18, 1979 Upper Air Obs. (Adiabatic Charts) for Three Mile Island Incident	4

Middletown, PA - April 1-18, 1979 Winds Aloft (WBAN 20 - RAWIN) for Three Mile Island Incident	8
(Middletown) Three Mile Island Incident	4
Monthly Mean Temperature and Monthly Total Precipitation for 7 Chinese Stations	1
Multivariate Normality NASA TND-8226	5
NOAA Technical Memorandum, EDIS-NCC-3(IFYGL)	4
A Note on Climatology of Thailand and Southeast Asia - Tech. Memo ADSTM 10	4
Probability Estimates of Temperature Extremes from the Contiguous U. S., NUREG/CR-1390	2
Probable Maximum Precipitation for the Upper Deerfield River Drainage Massachusetts/Vermont, NOAA Tech. Memo. NWS HYDRO-39 (June 1984)	1
Separation of Mixed Data Sets into Homogeneous Sets - NOAA Tech. Report EDS-19, January 1977	4
Severe Local Storm Occurrences (1955-1967)	2
Standard Deviation of Monthly Average Temperature in the U.S. - NOAA Tech. Report EDS-3, April 1978 (1941-1970)	1
Substation Histories (BOR-1956)	86
Temperature and Precipitation Correlations Within the U.S. - NOAA Tech. Report EDS-26, February 1978	1
Atlantic Tropical Cyclone Strike Probabilities, Vol. I: 24 hr. Movement, August 1971	2
Vol. II: 48 hr. Movement	2
Vol. III: 72 hr. Movement	3
Atlantic Tropical Cyclone Vector Mean Charts, August 1971	1
North Atlantic Tropical Cyclones from Climatological Data National Summary Annuals	6
North Indian Tropical Cyclone Vector Mean Charts, October 1973	1
North Indian Tropical Cyclone Strike Probabilities, Vol. I, II, III; 24, 48, 72 Hour Movement, December 1973	2



North Pacific Tropical Cyclone Strike Probabilities	
Vol. I: 24 Hour Movement, September 1973	2
Vol. II: 48 Hour Movement	3
Vol. III: 72 Hour Movement	3
North Pacific Tropical Cyclone Vector Mean Charts, July 1973	3
South Indian Tropical Cyclone Strike Probabilities	2
Vol. I, II, III; 24, 48, 72 Hour Movement - December 1973	
South Indian Tropical Cyclone Vector Mean Charts, November 1973	1
Southeast Pacific and Australian Area Tropical Cyclone Strike Probabilities, Vol. I, II, III; 24, 48, 72 Hour Movement, February 1971	4
Southwest Pacific and Australian Area Tropical Cyclone Vector Mean Charts, November 1973	1
U. S. Meteorological Yearbook	
1935 Edition	3
1936 Edition	3
1937 Edition	3
1938 Edition	3
1939 Edition	3
1940 Edition	3
1941 Edition	3
1942 Edition	3
1943-1949 Edition	3
NBS Building Science Series 160: Directional Extreme Wind Speed Data for the Design of Buildings and Other Structures.	3
WMO Symposium on Meteorology as Related to Urban and Regional Land-Use Planning	6

ABSTRACT: A number of various historical publications, primarily meteorological/climatological, not written about elsewhere in this GUIDE and not assigned a specific file have been placed on microfiche and filed in the NCDC archives.

The microfiche, or paper copies from microfiche, are available for purchase from the NCDC.

FILE TAG: FA00XXX (see below).

FILE NAME: (FA00380) NORTH AMERICAN CONSTANT PRESSURE CHARTS.  
(FA00381) NORTHERN HEMISPHERE CONSTANT PRESSURE CHARTS.

TIME PERIOD: January 1, 1946 through the present (updated monthly).

GEOGRAPHIC COVERAGE: North American Continent or Northern Hemisphere.

FILE SIZE: 409 reels of 35-millimeter microfilm.

FORMAT: Twice daily analyzed constant pressure charts as follows;

1. January 1, 1946 through December 31, 1949 for 0400 and 1600 GMT for 1000-, 850-, 700-, 500-, 300-, and 200-millibars,
2. January 1, 1950 through May 31, 1957 for 0300 and 1500 GMT for 1000-, 850-, 700-, 500-, 300-, 200-, and 150-millibars,
3. June 1, 1957 through December 31, 1966 for 0000 and 1200 GMT for 850-, 700-, 500-, 300-, 200-, and 150-millibars. For 1200 GMT only, 100-millibars.
4. January 1, 1967 through the present for 0000 and 1200 GMT for 850-, 700-, 500-, 300-, and 200-millibars, and 1200 GMT only for 100-, 50-, 30-, and 10-millibars. Analyses for 4-, and 1-millibars are sometimes included for 1200 GMT.

FILE STRUCTURE: These files are on 6 to 12 reels of 35-millimeter microfilm each year from January 1, 1946 through December 31, 1967 and on one reel of 35-millimeter microfilm each month from January 1, 1968 to the present. Both files are placed on the same reel of microfilm and filed in the NCDC archives.

CONTENTS: Analyzed heights (decameters) for each constant pressure chart are drawn as solid lines at 60-meter intervals. Isotachs at 20-knot intervals are drawn as dashed lines. High and low pressure centers, troughs, ridges, and jet streams (sometimes) are depicted. Station observational data with wind-barbs are also plotted.

ABSTRACT: These analyzed constant pressure charts are prepared by the National Weather Service, National Meteorological Center as part of their routine analyses and forecasting procedures. They are then sent to the NCDC to be placed on 35-millimeter microfilm and filed in the archives.

This file is available for purchase from the NCDC.

FILE TAG: FA00307.

FILE NAME: NORTH AMERICAN SURFACE CHARTS.

TIME PERIOD: March 1, 1942 through the present (updated quarterly).

GEOGRAPHIC COVERAGE: North America; 20 degrees North to 70 Degrees North latitude.

FILE SIZE: 173 reels of 35-millimeter microfilm.

FORMAT: Analyzed surface weather charts as follows;

1. 0000, 0600, 1200, and 1800 GMT from March 1, 1942 through September 30, 1953,
2. 0000, 0300, 0600, 0900, 1200, 1500, 1800, and 2100 GMT from October 1, 1953 through the present.

FILE STRUCTURE: This file of surface weather charts is stored on 3 to 6 reels of 35-millimeter microfilm each year from March 1, 1942 through April 30, 1954; from May 1, 1954 through December 31, 1984 on 4 reels of 35-millimeter microfilm each year; and from January 1, 1985 through the present on 6 reels of 35-millimeter microfilm each year and filed in the NCDC archives.

CONTENTS: These surface weather charts contain isobaric analyses at 4-millibar intervals. They also depict high and low pressure areas, tropical cyclones, and the various types of fronts (cold, warm, etc.). Surface land and surface marine observational data are plotted.

ABSTRACT: These analyzed surface weather charts are prepared by the National Weather Service, National Meteorological Center as part of their routine analyses and forecasting procedures. They are then sent to the NCDC to be placed on 35-millimeter microfilm and filed in the archives. Some of the charts from 1942 through 1953 are analyses of the United States only.

This file is available for purchase from the NCDC.

FILE TAG: FA00308.

FILE NAME: NORTHERN HEMISPHERE SURFACE CHARTS.

TIME PERIOD: May 1, 1954 through the present (updated quarterly).

GEOGRAPHIC COVERAGE: Northern Hemisphere; pole to 10 degrees North latitude.

FILE SIZE: 125 reels of 35-millimeter microfilm.

FORMAT: Analyzed surface weater charts for 0000, 0600, 1200, and 1800 GMT.

FILE STRUCTURE: This file of surface weather charts is stored on 4 reels of 35-millimeter microfilm each year and filed in the NCDC archives.

CONTENTS: These surface weather charts contain isobaric analyses at 4-millibar intervals. They also depict high and low pressure areas, tropical cyclones, and the various types of fronts (cold, warm, etc.). Surface land and surface marine observational data are plotted.

ABSTRACT: These analyzed surface weather charts are prepared by the National Weather Service, National Meteorological Center as part of their routine analyses and forecasting procedures. They are then sent to the NCDC to be placed on 35-millimeter microfilm and filed in the archives.

This file is available for purchase from the NCDC.

FILE TAG: FA00311.

FILE NAME: OBSERVED SNOW COVER CHARTS.

TIME PERIOD: March 1, 1966 through the present (updated annually).

GEOGRAPHIC COVERAGE: Conterminous United States and Southern Canada.

FILE SIZE: 21 reels of 35-millimeter microfilm.

FORMAT: Computer plotted chart for 1200 GMT daily.

FILE STRUCTURE: This file of charts is stored on one reel of 35-millimeter microfilm each year and filed in the NCDC archives.

CONTENTS: The major parameters plotted on these charts are total snow depth and 6-hour increase of snow to the nearest whole inch, but trace amounts are also plotted. Total snow depth is plotted to the right of a blacked-in station circle. When there has been snow in the last six hours, this amount is plotted centered on the station circle using white numbers on a black background. Additional reports, for which there is no space at the station location, are listed in a column along the right edge of the chart identified by station number, call letter, or name.

ABSTRACT: These computer plotted charts are prepared by the National Weather Service, National Meteorological Center as part of their routine analyses and forecasting procedures. The data plotted on these charts are from the automatically processed data sets which have as their source the 1200 GMT Service C (3-hourly synoptic observations) and Service A (hourly aviation observations) of the National Weather Service Automatic Field Operations System. These charts are prepared only for those days that snow cover exists, normally October through April. They are then sent to the NCDC to be placed on 35-millimeter microfilm and filed in the archives.

This file is available for purchase from the NCDC.

FILE TAG: FA00309.

FILE NAME: OBSERVED 24-HOUR PRECIPITATION CHARTS.

TIME PERIOD: January 1, 1962 through the present (updated annually).

GEOGRAPHIC COVERAGE: Conterminous United States, Southern Canada, and Northern Mexico.

FILE SIZE: 24 reels of 35-millimeter microfilm.

FORMAT: Computer plotted chart for 1200 GMT daily.

FILE STRUCTURE: The charts in this file are stored on one reel of 35-millimeter microfilm for each year and filed in the NCDC archives.

CONTENTS: These charts present plotted 24-hour precipitation amounts to one-hundredth inch and traces (less than one-hundredth inch). When a station reported no 24-hour precipitation, the 1200 GMT 6-hour accumulated precipitation amount is plotted instead, and this substitution is denoted by plotting it with a peaked symbol, "A," in place of the decimal point. Additional reports, for which there is no space at the station location, are listed in a column along the right edge of the chart identified by station number, call letters, or name.

ABSTRACT: These computer plotted charts are prepared by the National Weather Service, National Meteorological Center as part of their routine analyses and forecasting procedures. They are then sent to the NCDC to be placed on 35-millimeter microfilm and filed in the archives.

This file is available for purchase from the NCDC.

FILE TAG: FA00823.

FILE NAME: PRECIPITATION FREQUENCY ATLAS OF THE WESTERN UNITED STATES; NOAA ATLAS 2.

TIME PERIOD: Not time dependent.

GEOGRAPHIC COVERAGE: The eleven western states of the United States.

FILE SIZE: One reel of 35-millimeter microfilm.

FORMAT: Isopluvial maps and formulae.

FILE STRUCTURE: The eleven volumes of this publication namely; I-Montana, II-Wyoming, III-Colorado, IV-New Mexico, V-Idaho, VI-Utah, VII-Nevada, VIII-Arizona, IX-Washington, X-Oregon, and XI-California, are stored on one reel of 35-millimeter microfilm and filed in the NCDC archives. U. S. WEATHER BUREAU TECHNICAL PAPER NO. 40 and NOAA TECHNICAL MEMORANDUM NWS HYDRO-35 are stored on the same reel of 35-millimeter microfilm.

CONTENTS: Each volume of the atlas is organized into three parts. The first section discusses the historical background, procedures, and methods used in preparing the maps and how to interpret and use them. The second discusses ideas that are applicable only to the particular State considered in that volume. Included in this section are methods (monograms and equations) useful for estimating precipitation-frequency values for durations other than 6 and 24 hours. The last part of the atlas presents isopluvial maps for the 6- and 24-hour durations for return periods of 2, 5, 10, 25, 50, and 100 years.

ABSTRACT: The publication in this file was prepared and published by the National Weather Service in 1973. This atlas is the culmination of many years of investigation and is based upon all of the previous work on precipitation-frequency studies. It utilizes more data and new methods of analyses, and presents in more detail with greater accuracy the precipitation-frequency regime. It also replaces U. S. WEATHER BUREAU TECHNICAL PAPER NO. 40 for these eleven western states.

This file is available for purchase from the NCDC.

FILE TAG: FA00342.

FILE NAME: RADAR PLAN POSITION INDICATOR SCOPE.

TIME PERIOD: January 1, 1955 through the present (updated monthly).

GEOGRAPHIC COVERAGE: Selected stations; United States.

FILE SIZE: 48,800 reels of 16- and 35-millimeter microfilm.

FORMAT: Photographic frames of the Plan Position Indicator scope at least every 5 minutes and sometimes as often as 40 seconds.

FILE STRUCTURE: The reels of radar microfilm are filed in the NCDC archives by station.

CONTENTS: The photographic frames of the Plan Position Indicator (PPI) scope provide the direction and distance of echoes, which include individual cells or areas of cells, from the station. From a series of frames, the intensity (increasing or decreasing) and direction of movement can be determined.

A junction lamp display is shown to the right of the PPI scope on 16-mm photos. This display provides the viewer with pertinent information about the radar function settings, range, etc. at the time of the photo. On 35-mm photos, this information is available by means of a coded lamp system which is around the outside perimeter of the PPI scope. A plaque displayed just below the lamp display on 16-mm film and just below the clock on 35-mm film gives the international call sign, year, and film roll number. On all 35-mm photos, and some 16-mm photos, the Julian date is indicated in the center of the clock. All photos have a film frame number shown on a counter below the plaque.

ABSTRACT: In early 1950 the National Weather Service (NWS) initiated a National Radar Network program. At that time, the radar observations were recorded on manuscript records. In 1955, eight stations were equipped with cameras to photograph on 35-millimeter microfilm the Plan Position Indicator Scope (PPI). Since that time the NWS National Radar Network has grown to 110 stations of which 59 are camera equipped and who send their 16-millimeter radar film to the NCDC for processing and filing in the archives.

Copies of the radar film are available in either 16-millimeter or 35-millimeter microfilm. Glossy prints (8 x 10 inch size) of individual frames can also be made available upon request. In addition, more detailed descriptions of the echoes on the PPI scope are



available in the RADAR WEATHER OBSERVATIONS file.  
Another related file, RADAR SUMMARY CHARTS is also  
available.

This file is available for purchase from the NCDC.

FILE TAG: FA00310.

FILE NAME: RADAR SUMMARY CHARTS.

TIME PERIOD: March 1, 1957 through the present (updated monthly).

GEOGRAPHIC COVERAGE: United States, except Alaska and Hawaii.

FILE SIZE: 346 reels of 35-millimeter microfilm.

FORMAT: Hourly analyzed charts.

FILE STRUCTURE: The charts in this file are stored on one reel of 35-millimeter microfilm for each month and filed in the NCDC archives.

CONTENTS: These charts present analyzed areas, lines, and cells of cloud formations that include the height of the base and tops, and their movement and intensity. Precipitation types and change of intensity (+ is new or increasing, - is decreasing) are also depicted.

ABSTRACT: These analyzed charts are prepared by the National Weather Service, National Meteorological Center as part of their routine analyses and forecasting procedures. The time of these charts are 35 minutes past the hour for all 24 hours (GMT) of the day. These charts are then sent to the NCDC to be placed on 35-millimeter microfilm and filmed in the archives.

This file is available for purchase from the NCDC.

FILE TAG: FA00439.

FILE NAME: RAINFALL FREQUENCY ATLAS OF THE UNITED STATES; U. S. WEATHER BUREAU TECHNICAL PAPER NO. 40.

TIME PERIOD: Not time dependent.

GEOGRAPHIC COVERAGE: Contiguous United States.

FILE SIZE: One reel of 35-millimeter microfilm.

FORMAT: Isopluvial maps and formulae.

FILE STRUCTURE: This publication is stored on one reel of 35-millimeter microfilm along with NOAA ATLAS 2 and NOAA TECHNICAL MEMORANDUM NWS HYDRO-35 and filed in the NCDC archives.

CONTENTS: This publication presents information on: the analyses of the basic data and the isopluvial maps, guides for estimating durations and/or return periods not presented on the maps, comparisons with previous rainfall frequency studies, probability considerations, probable maximum precipitation (PMP), area-depth relationships and seasonal variation. The isopluvial maps presented are 1-year, 2-year, 5-year, 10-year, 35-year, 50-year and 100-year return periods for 30-minute, 1-hour, 2-hour, 3-hour, 6-hour, 12-hour, and 24-hour rainfall (inches).

ABSTRACT: The RAINFALL FREQUENCY ATLAS OF THE UNITED STATES was prepared and published by the U. S. Weather Bureau (now the National Weather Service) in May 1961. The publication is intended to be a convenient summary of empirical relationships, working guides, and maps useful in practical problems requiring rainfall-frequency data. It is an outgrowth of several previous U. S. Weather Bureau publications on this subject and contains an expansion and generalization of the ideas and results presented in earlier papers.

This file is available for purchase from the NCDC.

FILE TAG: FA00023.

FILE NAME: SOUTHERN HEMISPHERE CONSTANT PRESSURE CHARTS.

TIME PERIOD: November 1, 1975 through the present (updated every 4 months).

GEOGRAPHIC COVERAGE: Southern Hemisphere; pole to 10 degrees South latitude.

FILE SIZE: 28 reels of 35-millimeter microfilm.

FORMAT: Twice daily, 0000 and 1200 GMT, computer plotted and analyzed charts for constant pressure levels of 500-, 300-, and 250-millibars.

FILE STRUCTURE: These charts are on 4 reels of 35-millimeter microfilm from November 1975 through December 1977; 3 reels of 35-millimeter microfilm each year from 1978 through the present and filed in the NCDC archives.

CONTENTS: Analyzed heights (decameters) for each pressure chart are drawn as solid lines at 60-meter intervals. Isotachs at 20-knot intervals are drawn as dashed lines. High and low pressure centers are depicted and the station observational data with wind-barbs are plotted.

ABSTRACT: These analyzed charts are prepared by the National Weather Service, National Meteorological Center as part of their routine analyses and forecasting procedures. They are then sent to the NCDC to be placed on 35-millimeter microfilm and filed in the archives.

This file is available for purchase from the NCDC.

FILE TAG: FA00085.

FILE NAME: SOUTHERN HEMISPHERE SURFACE/1000-500 MILLIBAR THICKNESS CHARTS.

TIME PERIOD: January 1, 1967 through June 30, 1971 and November 1, 1975 through the present (updated annually).

GEOGRAPHIC COVERAGE: Southern Hemisphere; pole to 20 degrees South latitude.

FILE SIZE: 19 reels of 35-millimeter microfilm.

FORMAT: Computer analyzed charts for 0000 and 1200 GMT.

FILE STRUCTURE: These charts are on 6 reels of 35-millimeter microfilm from January 1, 1967 through June 30, 1971; 9 reels of 35-millimeter microfilm from November 1, 1975 through December 31, 1981; one reel of 35-millimeter microfilm each year from January 1, 1982 through the present and filed in the NCDC archives.

CONTENTS: These charts depict computer isobaric analyses at 4-millibar intervals and thickness analyses in decameters. High and low pressure areas are also depicted. There are no plotted station data.

ABSTRACT: These computer analyzed charts are prepared by the National Weather Service, National Meteorological Center as part of their routine analyses and forecasting procedures. They are then sent to the NCDC to be placed on 35-millimeter microfilm and filed in the archives.

This file is available for purchase from the NCDC.

FILE TAG: FA00314.

FILE NAME: TROPICAL STRIP SURFACE CHARTS.

TIME PERIOD: March 1, 1969 through the present (updated quarterly).

GEOGRAPHIC COVERAGE: Global; 30 degrees North to 50 degrees South latitude.

FILE SIZE: 49 reels of 35-millimeter microfilm.

FORMAT: These charts are analyzed in two sections, one for the Western Hemisphere and one for the Eastern Hemisphere. They include 0000 and 1200 GMT charts from March 1, 1969 through December 31, 1978 and 0000, 0600, 1200, and 1800 GMT charts from January 1, 1979 through the present.

FILE STRUCTURE: These charts are on one reel of 35-millimeter microfilm for 1969, two reels per year (January-June, July-December from 1970 through 1978, 4 reels per year (January, February, March -- October, November, December) from 1979 through 1984, 6 reels per year (January, February ---- November, December) from January 1985 through the present and filed in the NCDC archives.

CONTENTS: The Western and Eastern Hemisphere charts depict wind flow patterns by solid streamlines, fronts, troughs, ridges, and high and low pressure areas. Plotted data include surface land and surface marine stations and satellite winds from low cloud motions. Extra surface marine data are plotted at the bottom of each chart.

ABSTRACT: These analyzed charts are prepared by the National Weather Service, National Meteorological Center in two sections, one for the Eastern Hemisphere and one for the Western Hemisphere, as part of their routine analyses and forecasting procedures. They are then sent to the NCDC to be placed on 35-millimeter microfilm and filed in the archives.

This file is available for purchase from the NCDC.

FILE TAG: FA00315.

FILE NAME: TROPICAL STRIP UPPER AIR CHARTS.

TIME PERIOD: August 1, 1975 through the present (updated bi-monthly).

GEOGRAPHIC COVERAGE: Global; 60 degrees North to 50 degrees South latitude.

FILE SIZE: 43 reels of 35-millimeter microfilm.

FORMAT: Analyzed constant pressure charts for 0000 and 1200 GMT for the 700-, 500-, and 250-millibar levels. The 850- and 150-millibar levels were added January 1, 1985.

FILE STRUCTURE: These charts are on one reel of 35-millimeter microfilm for 1975, four reels of 35-millimeter microfilm per year (quarterly) from 1976 through 1984, and 6 reels of 35-millimeter microfilm per year (bi-monthly) from January 1985 through the present and filed in the NCDC archives.

CONTENTS: Analyzed flow fields for each constant pressure level are depicted by solid streamlines drawn to show the direction of flow. Isotachs are drawn as dashed lines at 20 knot intervals. Grid point winds from the analyzed field and station observational winds are plotted in wind-barb form.

ABSTRACT: These analyzed charts are prepared by the National Weather Service, National Meteorological Center as part of their routine analyses and forecasting procedures. They are then sent to the NCDC to be placed on 35-millimeter microfilm and filed in the archives.

This file is available for purchase from the NCDC.

FILE TAG: FA00379.

FILE NAME: U. S. WEATHER BUREAU TECHNICAL PAPERS.

TIME PERIOD: Not time dependent.

GEOGRAPHIC COVERAGE: Contiguous United States unless otherwise indicated in title of publication.

FILE SIZE: 145 microfiche, 2 reels of 35-millimeter microfilm.

FORMAT: Variable; out of print publications.

FILE STRUCTURE: U. S. Weather Bureau Technical Papers No. 1, 21, 40, 41, 44, 47, 49, 52, 54, 57 and 58 are stored on two reels of 35-millimeter microfilm. All other Technical Papers are stored on microfiche; the number of each are indicated in the ABSTRACT. Both the microfilm and microfiche are filed in the NCDC archives.

CONTENTS: Mostly self-explanatory within the title of each publication.

ABSTRACT: The U. S. Weather Bureau Technical Paper series contains 58 numbered papers. The complete series is listed below, with the year of publication and the number of microfiche for each.

This file is available for purchase from the NCDC.



- |        |  |            |
|--------|--|------------|
| 1.     | 10-year normals of pressure tendencies and hourly station pressures for the United States (1943).                                      | 35-mm only |
| 1.SUP. | A supplement was issued in 1945 and titled, Normal 3-hourly pressure changes for the United States at the intermediate synoptic hours. | 1          |
| 2.     | Maximum recorded United States point rainfall for 5 minutes to 24 hours at 207 First Order Stations. (Rev. 1963).                      | 1          |
| 3.     | Extreme temperatures in the upper air. (1947).   | 2          |
| 4.     | Topographically adjusted normal isohyetal maps for western Colorado. (1947).   | 1          |
| 5.     | Highest persisting dew points in western United States. (1948).  | 1          |
| 6.     | Upper air average values of temperature, pressure, and relative humidity over the United States and Alaska. (1945).                    | 2          |
| 7.     | A report on thunderstorm conditions affecting flight operations. (1948, reprinted 1949).   | 1          |
| 8.     | The climatic handbook for Washington, D.C. (1949).   | 5          |
| 9.     | Temperature at selected stations in the United States, Alaska, Hawaii, and Puerto Rico. (1949).  | 1          |
| 10.    | Mean precipitable water in the United States. (1949).  | 1          |
| 11.    | Weekly mean values of daily solar and sky radiation. (1949, Supplement No. 1, 1955).   | 1          |
| 12.    | Sunshine and cloudiness at selected stations in the United States, Alaska, Hawaii, and Puerto Rico. (1951).                            | 1          |
| 13.    | Mean monthly and annual evaporation data from free water surface for the United States, Alaska, Hawaii, and the West Indies. (1950).   | 1          |
| 14.    | Tables of precipitable water and other factors for a saturated pseudo-adiabatic atmosphere. (1951).                                    | 1          |

15.	Maximum station precipitation for 1, 2, 3, 6, 12, and 24 hours:	
	PART I, Utah (1951)	1
	Part II, Idaho (1951)	1
	Part III, Florida (1952)	2
	Part IV, Maryland, Delaware, and D.C. (1954)	1
	Part V, New Jersey (1953)	1
	Part VI, New England (1953)	3
	Part VII, South Carolina (1953)	1
	Part VIII, Virginia (1954)	2
	Part IX, Georgia (1954)	2
	Part X, New York (1954)	2
	Part XI, North Carolina (1955)	2
	Part XII, Oregon (1955)	2
	Part XIII, Kentucky (1955)	2
	Part XIV, Louisiana (1955)	1
	Part XV, Alabama (1955)	1
	Part XVI, Pennsylvania (1956)	3
	Part XVII, Mississippi (1956)	2
	Part XVIII, West Virginia (1956)	1
	Part XIX, Tennessee (1956)	2
	Part XX, Indiana (1956)	2
	Part XXI, Illinois (1958)	2
	Part XXII, Ohio (1958)	3
	Part XXIII, California (1959)	6
	Part XXIV, Texas (1959)	4
	Part XXV, Arkansas (1960)	2
	Part XXVI, Oklahoma (1961)	2
16.	Maximum 24-hour precipitation in the United States. (1952).	5
17.	Kansas-Missouri floods of June-July 1951. (1952).	2
18.	Measurements of diffuse solar radiation at Blue Hill Observatory. (1952).	1
19.	Mean number of thunderstorm days in the United States. (1952).	1
20.	Tornado occurrences in the United States. (Rev. 1960).	1
21.	Normal weather charts for the Northern Hemisphere. (1952).	35-mm only
22.	Wind patterns over lower Lake Meade. (1953).	1
23.	Floods of April 1952-Upper Mississippi, Missouri, Red River of the North. (1954).	2
24.	Rainfall intensities for local drainage design in the United States for durations of 5 to 240 minutes and 2-, 5-, and 10-year return periods. (1954).	obsolete

25.	Rainfall intensity-duration-frequency curves. (1955).	obsolete
26.	Hurricane rains and floods of August 1955, Carolinas to New England. (1956).	3
27.	The climate of Matanuska Valley. (1956).	1
28.	Rainfall intensities for local drainage design in western United States. For durations of 20 minutes to 24 hours and 1- to 100-year return periods. (1956).	1
29.	Rainfall intensity-frequency regime:	
	Part I, The Ohio Valley (1957)	1
	Part II, Southeastern United States (1958)	2
	Part III, The Middle Atlantic Region (1958)	1
	Part IV, Northeastern United States (1959)	1
	Part V, Great Lakes Region (1960).	1
30.	Tornado deaths in the United States. (1957).	1
31.	Monthly normal temperature, precipitation, and degree days. (1957).	1
32.	Upper air climatology of the United States.	
	Part I, Averages for isobaric surfaces, height, temperature, humidity, and density (1957)	4
	Part II, Extremes and standard deviations of average heights and temperatures (1958)	3
	Part III, Vector winds and shear (1959).	2
33.	Rainfall and floods of April, May, and June 1957 in the South Central United States. (1958).	7
34.	Upper wind distribution statistical parameter estimates. (1958).	2
35.	Climatology and weather services of the St. Lawrence Seaway and Great Lakes. (1959).	2
36.	North Atlantic tropical cyclones. (1959).	obsolete
37.	Evaporation maps of the United States. (1959).	1
38.	Generalized estimates of probable maximum precipitation for the United States west of the 105th meridian for areas to 400 square miles and durations to 24 hours. (1960).	2
39.	Verification of the Weather Bureau's 30-day outlook. (1961).	2
40.	Rainfall frequency atlas of the United States for durations from 30 minutes to 24 hours and return periods for 1 to 100 years. (1961).	35-mm only

41.	Meridional cross sections, upper winds over the Northern Hemisphere. (1961)	35-mm only
42.	Generalized estimates of probable maximum precipitation and rainfall-frequency data for Puerto Rico and Virgin Islands. (1961).	2
43.	Rainfall-frequency atlas of the Hawaiian Islands for areas to 200 square miles, durations to 24 hours, and return periods from 1 to 100 years. (1962).	2
44.	A catalog of 100 FCC-position transosonde flights. (1962).	35-mm only
45.	Snowmelt floods of March-April 1960, Missouri and Upper Mississippi basins. (1962).	2
46.	Atmospheric electric measurement results at Mauna Loa Observatory. (1962).	5
47.	Probable maximum precipitation and rainfall-frequency data for Alaska for areas to 400 square miles, durations to 24 hours, and return periods from 1 to 100 years. (1963).	35-mm only
48.	Characteristics of the hurricane storm surge. (1963).	3
49.	Two- to ten-day precipitation for return periods of 2 to 100 years in the contiguous United States. (1964).	35-mm only
50.	Frequency of maximum water equivalent of March snow cover in North Central United States. (1964).	1
51.	Two- to ten-day precipitation for return periods of 2 to 100 years in Hawaiian Islands. (1965).	1
52.	Two- to ten-day rainfall for return periods of 2 to 100 years in Alaska. (1965).	35-mm only
53.	Two- to ten-day rainfall for return periods of 2 to 100 years in Puerto Rico and Virgin Islands. (1965).	1
54.	Meteorological summaries pertinent to atmospheric transport and dispersion over Southern California. (1965).	35-mm only
55.	Tropical cyclones of the North Atlantic Ocean. (1965).	3
56.	Interdiurnal variability of pressure and temperature in the conterminous United States. (1966).	1
57.	Normal monthly number of days with precipitation of 0.5, 1.0, 2.0, and 4.0 inches or more in the conterminous United States. (1966).	35-mm only

58.

A catalog of radar-positioned, constant-volume  
balloon (Tetroon) flights. (1966).

35-mm only

FILE TAG: FA00316.

FILE NAME: VORTICITY CHARTS.

TIME PERIOD: May 1, 1961 through the present (updated semiannually).

GEOGRAPHIC COVERAGE: North America.

FILE SIZE: 49 reels of 35-millimeter microfilm.

FORMAT: Twice daily, 0000 and 1200 GMT, computer-produced initial analysis and 12-, 24-, 36-, and 48-hour prognoses.

FILE STRUCTURE: The charts for 1961 are on one reel of 35-millimeter microfilm - subsequent charts are placed on two reels of microfilm each year; January through June and July through December and filed in the NCDC archives. The MEAN RELATIVE HUMIDITY/VERTICAL-VELOCITY charts are included on these reels of microfilm.

CONTENTS: The basis for these charts is the seven-layer (PE) numerical prediction model. The 500-millibar contours are depicted as dashed lines at 60 meter intervals and are labeled by three-digit white numbers on a black background. Circulation centers are indicated by "H" for high and "L" for low. Centers are located by an X within a circle and labeled by three-digit hollow numbers in decameters. The location points of 500-millibar absolute vorticity isopleths are drawn as solid lines at intervals of  $2 \times 10^{-5} \text{sec}^{-1}$ . Absolute vorticity isopleths are labeled 2, 4, 6, etc., in multiples of  $10^{-5} \text{sec}^{-1}$ . Centers of positive absolute vorticity are indicated by an "x" and negative absolute vorticity by an "N".

ABSTRACT: These computer-produced charts are prepared by the National Weather Service, National Meteorological Center as part of their routine analyses and forecasting procedures. They are then sent to the NCDC to be placed on 35-millimeter microfilm and filed in the archives.

This file is available for purchase from the NCDC.

FILE TAG: FA00358.

FILE NAME: WEATHER DEPICTION ANALYSIS CHARTS.

TIME PERIOD: January 1, 1976 through the present (updated quarterly).

GEOGRAPHIC COVERAGE: Conterminous United States, Southern Canada, and Northern Mexico.

FILE SIZE: 40 reels of 35-millimeter microfilm.

FORMAT: Computer plotted and manually analyzed air terminal weather conditions on charts for 0100, 0400, 0700, 1000, 1300, 1600, 1900, and 2200 GMT daily.

FILE STRUCTURE: Charts in this file are placed on four reels of 35-millimeter microfilm (January, February, March -- October, November, December) each year and filed in the NCDC archives.

CONTENTS: The data plotted on these charts are from the automatically processed surface data set which has as its source the SA's (hourly aviation observations) Service A of the National Weather Service automated field operations system. The tide information, that is hand plotted, comes from the SM's (6-hourly observations) Service C. The plotting model on each station circle is an abbreviated version of the complete aviation observation and includes significant weather, visibility, total sky cover, and ceiling height. When the total sky cover is 5/10 or less, the height of the lowest scattered layer is plotted. Visibilities over 6 miles are not plotted. Areas with IFR conditions (ceiling below 1000 feet and/or visibility less than 3 miles) are enclosed by solid lines. Areas with MVFR conditions (ceiling 1000 feet to 3000 feet and visibility 3 miles to 5 miles) are enclosed by scalloped lines. All other areas on the chart are VFR conditions (ceiling greater than 3000 feet and visibility more than 5 miles). High and low pressure centers, fronts, troughs, and squall lines from the previous hour are also depicted.

ABSTRACT: These computer plotted, manually analyzed, charts, are prepared by the National Weather Service, National Meteorological Center as part of their routine analyses and forecasting procedures. They are then sent to the NCDC to be placed on 35-millimeter microfilm and filed in the archives.

This file is available for purchase from the NCDC.

FILE TAG: FA00317.

FILE NAME: WINDS ALOFT CHARTS.

TIME PERIOD: March 1, 1942 through the present (updated annually).

GEOGRAPHIC COVERAGE: United States, except Alaska and Hawaii.

FILE SIZE: 161 reels of 35-millimeter microfilm.

FORMAT: Plotted 6-hourly, or 12-hourly, United States charts. The charts were plotted for 0300 and 1500 GMT (some years had additional 0900 and 2100 GMT) from March 1942 through May 1957. From June 1957 through the present charts were plotted for 0000 and 1200 GMT (some years had additional 0600 and 1800 GMT). The altitude of the plotted winds vary, almost year to year.

FILE STRUCTURE: The number of reels of 35-millimeter microfilm required for each year of charts has varied historically from one to six. Since 1982, they have been placed on one reel of microfilm for each year. These reels of microfilm are filed in the NCDC archives.

CONTENTS: These charts present plotted stations wind direction (36 points) and speed (knots) as wind-barbs for various altitudes from 3,000 feet to 47,000 feet.

ABSTRACT: These plotted charts are prepared by the National Weather Service, National Meteorological Center as part of their routine analyses and forecasting procedures. They are then sent to the NCDC to be placed on 35-millimeter microfilm and filed in the archives.

This file is available for purchase from the NCDC.



FILE TAG: FA00815.

FILE NAME: CLIMATES OF THE WORLD.

TIME PERIOD: Variable averages.

GEOGRAPHIC COVERAGE: Selected world locations.

FILE SIZE: One publication.

FORMAT: Narrative summaries, maps, and statistical data.

FILE STRUCTURE: This 1969 publication is stocked by the NCDC.

CONTENTS:

1. Brief discussions of the principal features of the climate of all the continents,
2. Worldwide annual average precipitation (in.) map, and January and July average temperature (Deg. F) maps.
3. Monthly and annual average precipitation (in.), seasonal average maximum and minimum temperatures (Deg. F), and annual extremes of temperature (Deg. F) for selected world locations.

ABSTRACT: This file is available for purchase from the NCDC.

FILE TAG: FA00063.

FILE NAME: CLIMATIC ATLAS OF THE OUTER CONTINENTAL SHELF WATERS AND COASTAL REGIONS OF ALASKA; VOLUME I - GULF OF ALASKA, VOLUME II - BERING SEA, VOLUME III - CHUKCHI-BEAUFORT SEA.

TIME PERIOD: Variable, using data from 1872 through 1974.

GEOGRAPHIC COVERAGE: Gulf of Alaska, Bering Sea, and Chukchi-Beaufort Sea.

FILE SIZE: 3 publications, 23 microfiche.

FORMAT: Narrative information, isopleth maps, and percent frequency graphs.

FILE STRUCTURE: A limited stock of the three volumes of this publication is maintained by the NCDC and the Arctic Environmental Information and Data Center, University of Alaska, 707 A Street, Anchorage, Alaska 99501. These publications are also on microfiche (Volume I on 8, Volume II on 8, Volume III on 7) and filed in the NCDC archives.

CONTENTS: Each volume of this publication contains narrative information, and charts as appropriate, on such hazards as storm surges, superstructure icing, hypothermia, and wind chill; extremes data on winds, temperature, and precipitation; and planning information on surface currents, bathymetry, sea ice, and aviation weather. Isopleth maps and percent frequency graphs presented are:

1. Precipitation/wind direction graphs and precipitation maps,
2. Precipitation types graphs and snow maps,
3. Air temperature/wind direction graphs and air temperature mean and threshold maps,
4. Wet bulb/relative humidity graphs and mean dew point temperature maps,
5. Air temperature/wind speed graphs and air temperature extremes maps,
6. Fog/time and fog/wind direction graphs and fog maps,
7. Cloud cover/wind direction graphs and cloud amount thresholds maps,
8. Visibility/wind direction graphs and visibility/thresholds maps,
9. Wind speed/direction graphs and wind speed/thresholds maps,
10. Wind direction/diurnal variation graphs and vector mean wind maps,
11. Wind speed/diurnal variation graphs and Scalar mean wind maps,
12. Low cloud ceiling/visibility graphs and low cloud ceiling and visibility thresholds maps,

13. Sea level pressure graphs and mean sea level pressure maps,
14. Fog/air-sea temperature difference graphs and mean sea surface temperature maps,
15. Sea surface temperature graphs and sea surface temperature extremes maps,
16. Wave height/direction graphs and wave height thresholds (nonhazardous) maps,
17. Wave height/period graphs and wave height thresholds (hazardous) maps,
18. Low pressure center movements graphs (roses) and storm track maps,
19. Persistence of visibility < 2 nautical miles graphs,
20. Persistence of wind > 10 knots graphs,
21. Persistence of wind  $\geq$  20 knots, graphs,
22. Annual maximum winds and waves for selected return periods - marine areas tables,
23. Annual maximum sustained winds for selected return periods graphs.

ABSTRACT:

This atlas is the result of a joint effort by the Artic Environmental Information and Data Center (AEIDC), University of Alaska, and the National Climatic Data Center to present descriptive climatology and data analyses of surface marine and atmospheric parameters for those waters and coastal regions of the Alaskan outer continental shelf important to resource development. It is designed to serve as a climatological reference in the assessment of potential impact by oil and gas exploration and development and of leasing and operating regulations and monitoring programs that will permit resource development and insure environmental protection.

The sources of data utilized to produce this atlas were several and include; handwritten individual station records from AEIDC files; surface weather data summarized by the U. S. Air Force, Air Weather Service's Environmental Technical Application Center; storm surge data from the National Weather Service Alaska Region; and surface land and marine weather observations in various files of the National Climatic Data Center archives.

The evaluation is in the form of a climatic atlas for each of three marine and coastal areas of Alaska, namely; The Gulf of Alaska (Volume I), The Bering Sea (Volume II), and the Chukchi and Beaufort Seas (Volume III). The first section in each volume contains information on such hazards as storm surges, superstructure icing, hypothermia, and wind chill; extremes data on winds, temperature, and precipitation; and planning information on surface currents, bathymetry, sea ice, and aviation weather. The second

section presents a detailed climatic profile in the form of isopleth analyses maps, graphs and tables.

This file is available for purchase from the NCDC.

FILE TAG: FA00328.

FILE NAME: CLIMATIC ATLAS OF THE UNITED STATES.

TIME PERIOD: 1931-1960.

GEOGRAPHIC COVERAGE: United States.

FILE SIZE: One publication.

FORMAT: Monthly and annual climatic maps and tables.

FILE STRUCTURE: 271 climatic maps and 15 tables in one publication that is stocked by the NCDC.

CONTENTS: Climatic maps and tables for the United States showing the national distribution of monthly and annual mean, normal, and/or extreme values of temperature (Deg. F), precipitation (in.), wind (mph), barometric pressure (MB), relative humidity (%), dewpoint (Deg. F), sunshine (hours and %), sky-cover (10ths), heating-degree days (base 65 Deg. F), solar radiation (langleys), and evaporation (in.).

ABSTRACT: This file is available for purchase from the NCDC.

FILE TAG: FA00818.

FILE NAME: CLIMATIC GUIDE FOR SIX U. S. CITIES; ALIAS CLIMATOGRAPHY OF THE UNITED STATES NO. 40.

TIME PERIOD: Variable.

GEOGRAPHIC COVERAGE: Six selected U. S. cities.

FILE SIZE: 8 microfiche.

FORMAT: Narrative information, sequential tabular data, and statistical data.

FILE STRUCTURE: These historical publications are on microfiche and filed in the NCDC archives as follows:

1. Selma, Alabama (1956), 1892-1955 on one microfiche,
2. Baltimore, Maryland (1956), 1817-1954, on one microfiche,
3. New York, New York (1958), 1822-1956, on two microfiche,
4. Seattle, Washington and the Puget Sound Area (1961), 1890-1959, on one microfiche,
5. Chicago, Illinois (1962), 1830-1960, on one microfiche,
6. Houston and Galveston, Texas Area (1962), 1874-1960 on two microfiche,

CONTENTS: This series of guides contain narrative summaries of general climatic conditions, historical station locations, and a general map of the area. The major parameters included are monthly and annual average temperatures (Deg. F), highest and lowest daily temperatures of record (Deg. F), mean hourly temperatures (Deg. F), dry-bulb temperatures (Deg. F), heating, and sometime cooling, degree days (base 65 Deg. F), precipitation (in.), snowfall (in.), station and sea level pressure (in. Hg or mb), wind speed (mph), relative humidity (%), dew-point temperature (Deg. F), wet-bulb temperature (Deg. F), ceiling heights (ft.), and visibility (miles).

ABSTRACT: This historical publications file was prepared and published by the NCDC. They were originally designed as climatic guides for metropolitan areas with a long history of daily weather observation data. Although this file was discontinued in 1963, long term data presented in these publications were continued in other

files in the NCDC archives. Among them are CLIMATOGRAPHY OF THE UNITED STATES NO. 20 for Selma, Alabama and LOCAL CLIMATOLOGICAL DATA (LCD), ANNUAL SUMMARY WITH COMPARATIVE DATA for Baltimore, Maryland; New York, New York; Seattle, Washington; Chicago, Illinois; Galveston and Houston, Texas. The CLIMATIC HANDBOOK for Washington, D. C., published in 1949 as U. S. WEATHER BUREAU TECHNICAL PAPER NO. 8 was the forerunner of the CLIMATOGRAPHY OF THE UNITED STATES NO. 40.

This file is available for purchase from the NCDC.

FILE TAG: FA00018.

FILE NAME: CLIMATIC SUMMARIES FOR NOAA DATA BUOYS.

TIME PERIOD: January 1972-December 1981.

GEOGRAPHIC COVERAGE: North Atlantic Ocean, North Pacific Ocean, and Gulf of Mexico.

FILE SIZE: One publication, four microfiche.

FORMAT: Monthly and annual means, standard deviations, extremes tables, and frequency distribution tables.

FILE STRUCTURE: This historical publication is on microfiche and filed in the NCDC archives. A stock of the publication is also maintained by the NCDC.

CONTENTS: This publication presents narrative descriptions and formulae (where appropriate) on data quality, definition of wave analysis parameters, and data processing along with statistical monthly and annual summaries;

Table 1 - Monthly and annual means, standard deviations, and extremes for air temperature (Deg. C), sea surface temperature (Deg. C), air-sea temperature difference (Deg. C), sea level pressure (MB), surface wind speed (knots), and significant wave heights (meters),

Table 2 - Monthly and annual frequency distribution of air temperature (Deg. C), sea surface temperature (Deg. C), air-sea temperature difference (Deg. C), sea level pressure (MB), surface wind speed (knots), and significant wave height (meters),

Table 3 - Monthly and annual percent frequency of wind direction (tens of degrees) versus wind speed (knots) based on three-hourly data,

Table 4 - The seasonal and annual percent frequency of wind speed (knots) versus significant wave height (meters) based on three-hourly data,

Table 5 - The seasonal and annual percent frequency of significant wave height (meters) versus average wave period (seconds) based on three-hourly data,

Table 6 - The seasonal and annual persistence (duration and interval in hours) of wind speed and wave height events based on three-hourly data.

ABSTRACT: The primary source of data used in this publication is from National Oceanic and Atmospheric Administration



buoys. Data utilized to produce this publication are included in file TD-1129.

This file is available for purchase from the NCDC.

FILE TAG: FA00811.

FILE NAME: CLIMATOLOGICAL DATA FOR AMUNDSEN-SCOTT, ANTARCTICA.

TIME PERIOD: July 1957 through December 1975.

GEOGRAPHIC COVERAGE: Antarctic stations.

FILE SIZE: 43 microfiche.

FORMAT: Tabular presentations of surface weather and upper air observations.

FILE STRUCTURE: These historical publications are on microfiche and filed in the NCDC archives as follows;

Volume 1: July 1957-December 1958 on 6 microfiche,  
Volume 2: June 1957 and January-December 1959 on 5 microfiche,  
Volume 3: January-December 1960 on 3 microfiche,  
Volume 4: January-December 1961 on 3 microfiche,  
Volume 5: January-December 1962 on 3 microfiche,  
Volume 6: January-December 1963 on 3 microfiche,  
Volume 7: January-December 1964 on 2 microfiche,  
Volume 8: January-December 1965 on 2 microfiche,  
Volume 9: January-December 1966 on 4 microfiche,  
Volume 10: January 1967-December 1968 on 5 microfiche,  
Volume 11: January 1969-December 1970 on 2 microfiche,  
Volume 12: January 1971-December 1972 on 2 microfiche,  
Volume 13: January-December 1973 on one microfiche,  
Volume 14: January 1974-December 1975 on 2 microfiche.

Subsequent data for Amundsen-Scott, Antarctica are not published but the original manuscript records are filed in the NCDC archives.

CONTENTS: Tabular data presented in this publication include the following:

1. Monthly and annual percentiles and extremes, for each year, of station pressure and station temperature.
2. Percent of days, for each month and year, with various atmospheric phenomena.
3. Peak wind speed (knots) and direction for each day of each year.
4. Percent frequency of sky cover, and mean cloud amount, for the hours 00, 06, 12, and 18 GMT for each month.
5. Percent frequency of visibility (statute miles) for the hours 00, 06, 12, and 18 GMT for each month.

6. Percent frequency of various ceiling-visibility combinations for each month and year.
7. Percent frequency of various temperature-wind speed combinations for each month.
8. Percent frequency of wind direction versus wind speed and hour for each month.
9. Mean rawinsonde data for 0000 and 1200 GMT for each month.
10. A complete listing of standard level data (height, temperature, relative humidity, and wind direction and speed) for each rawinsonde observation taken at 0000 and 1200 GMT.

In addition, Volume 14 contains a climatological data summary of surface data collected at Amundsen-Scott, Antarctica over the period 1957 through 1975.

ABSTRACT:

The CLIMATOLOGICAL DATA FOR AMUNDSEN-SCOTT, ANTARCTICA publication was initially prepared under that title with data for January 1971 through December 1972. It was a continuation of CLIMATOLOGICAL DATA FOR ANTARCTIC STATIONS that began with publication of data for the International Geophysical Year, July 1957 through December 1958. There are 14 volumes in this file. The Antarctic stations and the volumes in which their data appear are as follows:

Amundsen-Scott, Volumes 1-14; Little America V, Volumes 1-2; Byrd, Volumes 1-11; Plateau, Volumes 1-7; Eights, Volume 8; USNS Eltanin, Volumes 9-10; Ellsworth, Volumes 1-5; Wilkes, Volumes 1-6; Hallett, Volumes 1-7.

This file is available for purchase from the NCDC.

FILE TAG: FA00813.

FILE NAME: CLIMATOLOGICAL DATA FOR ARCTIC STATIONS.

TIME PERIOD: July 1957-December 1958; June 1966-April 1971.

GEOGRAPHIC COVERAGE: Drifting ice stations, Arctic.

FILE SIZE: 9 microfiche.

FORMAT: Tabular data.

FILE STRUCTURE: These historical publications are on microfiche and filed in the NCDC archives as follows;

1. Volume 1, 7/1957-12/1958, on 2 microfiche,
2. Volume 2, 6/1966-5/1968, on 4 microfiche,
3. Volume 3, 1/1968-4/1971, on 3 microfiche.

CONTENTS: Tabular data presented in these three volumes are;

1. Average and extreme maximum and minimum daily temperatures (Deg. F),
2. Average air temperature (Deg. F),
3. Frequency of pressure by 10-millibar intervals,
4. Station pressure (mb),
5. Number of observations with occurrences of weather,
6. Days with rain, days with snow, rain amount (in.), and snowfall (in.),
7. Temperature and wind speed (Deg. F) and knots),
8. Three-hourly observations of wind speed (knots),
9. Ceiling-visibility (feet and miles),
10. Total cloud amount (10ths), and
11. Rawinsonde data.

ABSTRACT: This three-volume series of CLIMATOLOGICAL DATA FOR ARCTIC STATIONS presents summarized meteorological observations. Issue Number 1 contains data for the International Geophysical Year July 1957 through December 1958; data for two stations--Drifting Station A and Drifting Station B--are summarized in this publication. Issues Number 2 and Number 3 contain data

from June 1966 through May 1968 and January 1968 through April 1971 respectively for Ice Island T-3.

This file is available for purchase from the NCDC.

FILE TAG: FA00302.

FILE NAME: CLIMATOLOGICAL DATA NATIONAL SUMMARY.

TIME PERIOD: January 1950 through December 1980.

GEOGRAPHIC COVERAGE: United States.

FILE SIZE: 405 microfiche.

FORMAT: Monthly and annual publications with narrative and tabular summaries and charts.

FILE STRUCTURE: This historical publication is stored on microfiche and filed in the NCDC archives.

CONTENTS: The monthly issue presents narrative summaries of general weather conditions and special reports on tropical cyclones. Also included are tables of observed extremes of temperature and precipitation for each State (entitled Condensed Climatological Summary through December 1968) together with the locations at which they occurred; basic climatological data (in metric units) for selected stations; heating degree days (monthly totals and seasonal and normal totals to date) for selected stations; cooling degree days (monthly totals and seasonal and normal totals to date) for selected stations; storm summary; rawinsonde data for standard pressure surfaces; and solar radiation intensities and net radiation. Monthly and seasonal heating degree day data and monthly and seasonal cooling degree day data are presented in only the June and December issues respectively. Charts published in the monthly issue include normal daily average temperature (Deg. F, 1930-1970), temperature departure from 19-year mean (Deg. F, 1930-1970), total precipitation (inches), percentage of normal precipitation, tracks of centers of anticyclones at sea level, and tracks of center of cyclones at sea level.

The annual issue presents narrative summaries of general weather conditions, tornadoes, and of tropical cyclones in the North Atlantic, Eastern North Pacific, Central North Pacific, and Western North Pacific Oceans. Included are charts of the tornado and tropical cyclone tracks, and related tables. Additional tables include those on basic climatological data for the year in metric units; maximum short duration precipitation; sunshine amount and percent of possible; and normals, means, and extremes. Additional charts depict departure from normal for annual temperatures (Deg. F), total annual precipitation (inches), and percentage of normal annual precipitation.

The following listed narrative summaries, tabular summaries, and charts have been included in previous monthly and annual issues of this publication: Monthly Narrative Summaries - 1) General summary of river and flood conditions (January 1950 through December 1972) and 2) General summary of national flood events (January 1953 through December 1977); Annual Narrative Summaries - 1) General summary of river and flood conditions (1950 through 1972), 2) General summary of national flood events (1953 through 1977), and 3) General summary of flood losses (1950 through 1975); Monthly Tabular Data - 1) Flood stage data (January 1950 through December 1977), 2) Solar radiation totals (January 1950 through August 1972) (these data are considered questionable and should be used with caution) and July 1975 through December 1976, 3) Total ozone data (August 1959 through December 1972), 4) Pilot balloon data (January 1950 through December 1955), 5) Radiosonde data (January 1950 through December 1955), 6) Rawin data (January 1950 through April 1956), 7) Severe storms (January 1950 through December 1953), 8) Storm data and unusual phenomena (January 1954 through December 1958), and 9) Solar ultra-violet radiation data (December 1967 through February 1974); Annual Tabular Data - 1) Solar radiation totals (1950 through 1971, which are considered questionable; 1975 through 1976), 2) Pilot balloon data (1950 through 1955), 3) Rawinsonde data (1950 through 1955), 4) Radiosonde data (1950 through 1955), 5) Excessive short duration rainfall (1950 through 1972), 6) Average temperature and departures from normal by state (1950 through 1955), 7) Average precipitation and percent of normal precipitation by state (1950 through 1955), 8) Total evaporation and wind movement (1950 through 1952), and 9) Rawinsonde data (1956 through 1959); Monthly Charts - 1) Average temperature (Deg. F) at surface (January 1950 through March 1956), 2) Departure of precipitation from normal (inches) (January 1950 through July 1960), 3) Total snowfall (inches) (January 1950 through April 1972), 4) Percentage of normal (mean) monthly snowfall (January 1950 through April 1972), 5) Depth of snow on ground (inches) (January 1950 through April 1972), 6) Percentage of sky cover between sunrise and sunset (January 1950 through July 1960), 7) Percentage of normal (mean) sky cover between sunrise and sunset (January 1950 through July 1960), 8) Percentage of possible sunshine (January 1950 through June 1972), 9) Percentage of normal (mean) monthly sunshine (January 1950 through June 1972), 10) Average daily values of solar radiation (langleys) (January 1950 through June 1972), 11) Percentage of mean daily solar radiation (January 1950 through June 1972), 12) Average sea level pressure (mb) and surface windroses, and departure of average pressure (mb) from normal (January 1950 through December 1963), 13) Average sea level pressure (mb) and resultant wind, and

departure of average pressure (mb) from normal (January 1964 through June 1972), 14) 850-, 700-, 500- and 300-millibar, (1200 GMT) charts of average height and temperature, and resultant winds (January 1950 through June 1972) (these charts were 0300 GMT through May 1957), 15) 200- and 100-millibar (1200 GMT) charts of average height and temperature, and resultant winds (June 1956 through June 1972) (0300 GMT through May 1957), and 16) 50- and 30-millibar (1200 GMT) charts of resultant winds (January 1961 through June 1972). The data on the charts identified in items 10 and 11 above are considered questionable.

**ABSTRACT:**

The CLIMATOLOGICAL DATA NATIONAL SUMMARY, which was issued monthly and annually from January 1950 through December 1980, contains selected climatological data on a national basis. It began with the January 1950 issue, but prior to that, much of the data appeared in the MONTHLY WEATHER REVIEW, the U. S. METEOROLOGICAL YEARBOOK, and THE REPORT OF THE CHIEF OF THE WEATHER BUREAU.

This file is available for purchase from the NCDC.



FILE TAG: FAO0XXX (see below).

FILE NAME: FAO0383 - CLIMATOGRAPHY OF THE UNITED STATES NO. 10, CLIMATIC SUMMARY OF THE UNITED STATES, ESTABLISHMENT OF STATION THROUGH 1930 INCLUSIVE (by section).  
FAO0318 - CLIMATOGRAPHY OF THE UNITED STATES NO. 11, CLIMATIC SUMMARY OF THE UNITED STATES, SUPPLEMENT FOR 1931 THROUGH 1952 (by State).  
FAO0326 - CLIMATOGRAPHY OF THE UNITED STATES NO. 86, CLIMATIC SUMMARY OF THE UNITED STATES, SUPPLEMENT FOR 1951 THROUGH 1960 (by State).

TIME PERIOD: 1800's through 1960.

GEOGRAPHIC COVERAGE: United States, U.S. Virgin Islands, and Puerto Rico.

FILE SIZE: Climatology of the United States No. 10 on 106 microfiche; Climatology of the United States No. 11 on 64 microfiche; Climatology of the United States No. 86 on 89 microfiche and 45 publications.

FORMAT: Sequential tables and monthly and annual averages for selected locations.

FILE STRUCTURE: These historical publications are stored on microfiche and filed in the NCDC archives. A stock of these publications is maintained for the 1951-1960 period only by the NCDC.

CONTENTS: Sequential tables of precipitation (in.), snowfall in inches (1951-60 only), and mean temperature in degrees Fahrenheit (1951-60 only); monthly and annual averages of maximum, minimum, and mean temperatures (Deg.F), precipitation (in.), snowfall, and evaporation (in.); monthly and annual highest and lowest temperatures (Deg. F); mean number of days with precipitation equal to or greater than 0.1 and 0.5 inch; and mean number of days with temperature equal to or greater than 90 Deg. F or equal to or less than 32 Deg. F.

ABSTRACT: The CLIMATOGRAPHY OF THE UNITED STATES NO. 10, originally called and referred to as the BULLETIN W, was issued for each of 105 climatological sections, and for Puerto Rico and the U.S. Virgin Islands. Alaska and Hawaii were not included in this edition. However, a SUMMARY OF THE CLIMATOLOGICAL DATA OF ALASKA, published in 3 sections and containing data up to 1921 was issued in 1925; similarly, an issue was published for Hawaii with data through 1918, but the sections were not numbered. Each section of this publication (1930 edition) also contains a narrative summary of the topographic features and climatic conditions.

The CLIMATOGRAPHY OF THE UNITED STATES NO. 11 and NO. 86 series contain only statistical data and are supplements to NO. 10.

Although there have been no supplements to the CLIMATOGRAPHY OF THE UNITED STATES, CLIMATIC SUMMARY OF THE UNITED STATES, published since the 1951-1960 edition, sequential tables of monthly and annual values of the average maximum, average minimum, and average temperatures and total precipitation have been compiled for the period 1951-1980 for many stations. These are included in and may be ordered from TD-9641. Data subsequent to 1980 are available in TD-3220 and CLIMATOLOGICAL DATA files.

This file is available for purchase from the NCDC.

FILE TAG: FA00323.

FILE NAME: CLIMATOGRAPHY OF THE UNITED STATES NO. 82, SUMMARY OF HOURLY OBSERVATIONS.

TIME PERIOD: 1949-1954; 1956-1960; 1951-1960.

GEOGRAPHIC COVERAGE: Selected stations; United States and Puerto Rico.

FILE SIZE: 70 microfiche.

FORMAT: Monthly and annual frequency tables.

FILE STRUCTURE: These historical publications are on microfiche and filed in the NCDC archives. A stock of these publications are maintained for the 1951-1960 period only by the NCDC.

CONTENTS: Monthly and annual tables of; temperature (Deg. F) and wind speed (mph) - relative humidity (%) occurrences, percentage frequencies of wind direction (16 points) and speed (mph), occurrences of precipitation amounts (in.), percentage frequencies of ceiling (feet) - visibility (statute miles), and percentage frequencies of sky cover (10ths), wind, and relative humidity.

ABSTRACT: These publications were produced for National Weather Service stations where 24-hourly surface weather observations are recorded daily. The data used for the preparation of these publications are available in TD-3240 and TD-3280 files. This file, which is available for purchase from the NCDC, is available for (\*1956-1960, \*\*1949-1954 and 1951-1960) for the following stations;

Alabama	California	District of Columbia
Birmingham	*Bakersfield	Washington
Mobile	Burbank	
Montgomery	Fresno	Florida
	Los Angeles	Jacksonville
Alaska	Oakland	Miami
*Anchorage	Sacramento	*Orlando
*Cold Bay	San Diego	*Tallahassee
Fairbanks	San Francisco	Tampa
*King Salmon		*West Palm Beach
Arizona	Colorado	Georgia
Phoenix	*Colorado Springs	Atlanta
*Tucson	Denver	Augusta
	**Pueblo	*Macon
Arkansas		Savannah
Little Rock	Connecticut	
	*Hartford	Hawaii-Pacific
		*Hilo

	Delaware Wilmington	Honolulu *Wake Island
Idaho Boise **Pocatello	Missouri Kansas City St. Louis Springfield	Oklahoma Oklahoma City Tulsa
Illinois Chicago (Midway) *Chicago (O'Hare) Moline Springfield	Montana **Billings Great Falls **Helena **Missoula	Oregon Portland *Salem
Indiana Evansville Fort Wayne  Indianapolis *South Bend	Nebraska Omaha  New Jersey Newark	Pennsylvania Allentown Harrisburg Philadelphia *Pittsburgh  *Scranton
Iowa **Burlington Des Moines Sioux City	New Mexico Albuquerque	Rhode Island Providence
Kansas Topeka Wichita	New York Albany *Binghamton Buffalo New York (Int'l) New York (LaGuardia) Rochester Syracuse	South Carolina Charleston Columbia
Louisiana Baton Rouge Lake Charles New Orleans Shreveport	North Carolina **Asheville Charlotte Greensboro Raleigh *Winston-Salem	South Dakota Huron *Rapid City *Sioux Falls
Maine Portland		Tennessee Chattanooga Knoxville Memphis Nashville
Maryland Baltimore		Texas Amarillo Austin Brownsville Corpus Christi El Paso *Fort Worth Galveston Houston Laredo *Lubbock *Midland **Port Arthur
Massachusetts Boston	North Dakota Bismarck Fargo	
Michigan Detroit (City AP) *Flint Grand Rapids **Lansing	Ohio Akron Cincinnati Cleveland Columbus Dayton	

Minnesota  
Duluth  
Minneapolis

\*\*Toledo  
Youngstown

San Antonio  
\*Waco  
\*Wichita Falls

Mississippi  
Jackson

Utah  
Salt Lake City

Washington  
Spokane  
\*\*Yakima  
West Indies  
San Juan, P.R.

Wisconsin  
\*Green Bay  
\*\*La Crosse  
Madison  
Milwaukee

Vermont  
\*Burlington

Virginia  
Norfolk  
Richmond  
\*Roanoke

West Virginia  
\*Charleston

Wyoming  
\*Casper  
Cheyenne

FILE TAG: FA00022.

FILE NAME: DAILY RIVER STAGES.

TIME PERIOD: 1858 through the present (updated monthly).

GEOGRAPHIC COVERAGE: Selected stations, United States.

FILE SIZE: 13 microfiche.

FORMAT: Annual publication of; daily river stage, highest and lowest stage of the month and date, and highest stage of record and date tables.

FILE STRUCTURE: These annual publications are on microfiche for the years 1968 through 1971 and filed in the NCDC archives. Historical publications from 1858 through 1967 are filed in the NCDC Technical Library and are available for short term inter-library loan.

CONTENTS: Each publication contains sections on River Stations and Miscellaneous Information, Daily River Stages with Highest or Crest and Date for each month, and an Index by Stations.

ABSTRACT: Historically, this file was published under various names as follows;

1. 1858-1889, STAGES OF THE OHIO RIVER AND OF ITS PRINCIPAL TRIBUTARIES (Volume 1),
2. 1860-1889, STAGES OF THE MISSISSIPPI RIVER AND OF ITS PRINCIPAL TRIBUTARIES (Volume 2),
3. 1875-1889, STAGES OF WATER AT MISCELLANEOUS RIVER STATIONS IN CALIFORNIA, OREGON, NORTH CAROLINA, ETC. (Volume 3),
4. 1890-1948, DAILY RIVER STAGES AT RIVER GAGE STATIONS OF THE PRINCIPAL RIVERS OF THE UNITED STATES (Volumes 4-44),
5. 1949-1971, DAILY RIVER STAGES (Volumes 45-67).

The last issue of the DAILY RIVER STAGES was 1971. Subsequent data on daily river stages are available on the manuscript RECORD OF RIVER STAGE AND CLIMATOLOGICAL OBSERVATIONS forms filed in the NCDC archives.

This file is available for purchase from the NCDC.

FILE TAG: FA00347.

FILE NAME: HIGH ALTITUDE METEOROLOGICAL DATA.

TIME PERIOD: December 1959 through the present (updated quarterly).

GEOGRAPHIC COVERAGE: Selected stations, Global.

FILE SIZE: 763 microfiche, 23 reels of 35-millimeter microfilm.

FORMAT: Tabular and graphic forms for each rocketsonde observation. Tabular rawinsonde observations for a nearby station if available.

FILE STRUCTURE: Historical publications are on microfiche for the period December 1959 through December 1976; data are on 35-millimeter microfilm from January 1977 through the present and filed in the NCDC archives. Data are also in related magnetic tape file TD-5850 from January 1969 through the present.

CONTENTS: Wind (direction in whole degrees, speed in meters per second) and temperature (Deg. C) measurements; and computed values of pressure (MB), density (grams per cubic meter), and speed of sound (meters per second) for significant levels, constant pressure levels, and for each one Kilometer (KM) interval between the maximum height reached by the rocket (usually less than 90KM) and 20KM. The data are presented in tabular and graphic forms. A supplementary summary and a period of record comparative data table (means and standard deviations) are also included for each station month.

ABSTRACT: Initially, high altitude meteorological data reports were presented in a limited publication by the U. S. Army Electronics Research and Development Activity titled DATA REPORT OF THE METEOROLOGICAL ROCKET NETWORK FIRINGS. These reports began in April 1960 with the data for Fall 1959 and Winter 1960. Publication continued by season through the Summer 1962 data, then monthly from September 1962 through March 1964. World Data Center-A for Meteorology (WDC-A) began publishing these data on a monthly basis in January 1964 and continued through December 1968. Starting with January 1969 data, the WDC-A publication title was changed to its present title, HIGH ALTITUDE METEOROLOGICAL DATA, to accommodate all types of high altitude meteorological observations. The publication format was also changed at that time and it continued to be issued monthly through December 1972. Quarterly issues began in 1973 and continued as a formal publication through the October-November-December 1976 issue. Although data from January 1977 are not published, they are compiled in the same format as the 1976 publication, placed on microfilm, and key entered into related magnetic tape file TD-5850.

This file is available for purchase from the NCDC.

FILE TAG: FA00816.

FILE NAME: HISTORICAL CLIMATOLOGY SERIES; 1-1, A LONG RECORD OF WEATHER OBSERVATIONS AT COOPERSTOWN, NEW YORK, 1854-1977 (July 1978); 1-2, NINETY-ONE YEARS OF WEATHER RECORDS AT YELLOWSTONE NATIONAL PARK, WYOMING, 1887-1977 (March 1979); 1-3, A LONG RECORD OF WEATHER OBSERVATIONS IN SOUTHEASTERN, IOWA, 1839-1979 (July 1980).

TIME PERIOD: Variable.

GEOGRAPHIC COVERAGE: Selected stations; United States.

FILE SIZE: 3 publications, 3 microfiche.

FORMAT: Narrative summaries, topographic maps, and sequential tabular data.

FILE STRUCTURE: These historical publications are filed on microfiche in the NCDC archives. The NCDC also maintains a stock of these publications.

CONTENTS: Each publication contains a narrative summary on the history of the station and pertinent topographic maps of the surrounding area. Tabular data presented are sequential tables of monthly and annual mean temperature (Deg. F), mean maximum and mean minimum temperatures (Deg. F), highest and lowest temperatures (Deg. F), total precipitation and snowfall (in.), and dates of last freeze in spring and first freeze in fall (temperature 32 Deg. F or less).

ABSTRACT: These publications provide long-term climatological data and related historical information for selected observational stations which are located in distinctly nonurban environments. Some publications may include additional summaries of quasi-climatological data that are unique to the particular area, e.g., dates of lake surface freezing and ice disappearance.

This file is available for purchase from the NCDC.



FILE TAG: FA00082.

FILE NAME: HISTORICAL CLIMATOLOGY SERIES 2-1, INDEX OF HISTORICAL SURFACE WEATHER RECORDS, NEW YORK; HISTORICAL CLIMATOLOGY SERIES 2-2, A HISTORY OF SUNSHINE DATA IN THE UNITED STATES, 1891-1980; HISTORICAL CLIMATOLOGY SERIES 2-3, INVENTORY OF SOURCES OF LONG TERM CLIMATIC DATA IN MICROFILM AND PUBLICATION FORM.

TIME PERIOD: Variable, 1800's through 1980.

GEOGRAPHIC COVERAGE: United States.

FILE SIZE: 2 publications, 2 microfiche, one unpublished inventory.

FORMAT: Historical indices.

FILE STRUCTURE: A stock of publications for HISTORICAL CLIMATOLOGY SERIES 2-1 and 2-2 is maintained by the NCDC. They are also on microfiche and filed in the NCDC archives. HISTORICAL CLIMATOLOGY SERIES 2-3 is a "DRAFT" but can be copied for users.

CONTENTS: 2-1 Index of Historical Surface Weather Records, New York (August 1978)

Surface weather records from observation sites in the state of New York from the early 1800's thru 1980 are summarized in this index. Included in the publication is a synthesis of station histories and other sources of documentation from various published and unpublished sources which are on file at the NCDC. Specifically given are: maps showing observation site locations on a decadal basis; an index of station records with encoded instrument, archive, and publication data; an index of long period records (80 or more years of record); and an inventory of digitized data for 22 selected observation sites from the earliest recorded observation years through 1930. Also included is information excerpted from the Climatic Summary of the United States, 1930 Edition, New York Summary because of its relevance to the history of weather observations in New York.

2-2 A History of Sunshine Data in the United States, 1891-1980 (July 1981)

The NCDC has digitized and summarized monthly and annual totals of "duration of sunshine" from 239 observation sites for each available month and year of record for the period 1891-1984 in magnetic tape TD-9788 files. This publication gives the historical background of the sunshine recording network, periods of record for each recording site,

information on the types of locations of instruments, and formats for various sources of published data. The sunshine data set inventory is given in graphical format by state/station. Map presentations show the sunshine station network as it existed in the years 1891, 1900, 1920, 1940, 1960, and 1980, along with other information on station locations. Examples of time series of annual sunshine data, and a discussion on data interpretation are included as information which is generally helpful to the user of the sunshine data. Also given is a table of total possible sunshine in hours and tenths for the sunshine station network which was in operation during 1979.

2-3 Inventory of Sources of Long Term Climatic Data in  
Microfilm and Publication Form (July 1982)  
\*\* DRAFT\*\*

This inventory was designed to serve as a guide for users of 19th Century climatic data, but includes references to 18th and 20th Century data sets which are extensions of the data sets of principal interest. The data sources are primarily in manuscript, tabular, or graphical format, either a published hard copy or microform. The microform materials include microfilm copies of Climatological Record Books, journals, and diaries, with the very early diaries and journals being in no particular format. A major portion of this inventory of sources of long-term climatic data refers to holdings of the NCDC; one section refers to sources which have been identified by the Climatic Research Unit of the School of Environmental Sciences, University of East Anglia.

ABSTRACT:

This historical index file contains information about the availability of specific records of meteorological/climatological data. The information can be from either published or unpublished sources in a large variety of forms, such as: serial or occasional published reports, manuscript records, autographic records, microfilm or microfiche, and digital records on magnetic tape. Each publication gives the potential data user a comprehensive overview of the contents of those particular data sets of interest which are available from the NCDC and, occasionally, from other organizations which archive climatological data.

This file is available for purchase from the NCDC.

FILE TAG: FA00817.

FILE NAME: INPUT DATA FOR SOLAR SYSTEMS.

TIME PERIOD: 1941-1970; Temperature, Heating Degree Days and Cooling Degree Days. 1952-1976; Solar Radiation.

GEOGRAPHIC COVERAGE: Selected stations; United States, U. S. Pacific Islands, San Juan, Puerto Rico and Guantanamo Bay, Cuba.

FILE SIZE: 4 microfiche.

FORMAT: Monthly and annual normals or averages.

FILE STRUCTURE: This historical publication is on microfiche and filed in the NCDC archives. Data in the publication are also available in related magnetic tape file TD-9744.

CONTENTS: Monthly and annual mean daily values of maximum, minimum, and monthly mean temperatures (Deg. F); heating degree and cooling degree days (base 65 Deg. F); and total hemispheric solar radiation in BTU/ft<sup>2</sup>, kJ/m<sup>2</sup>, and langleys.

ABSTRACT: The tables in this publication are by-products of the U. S. Department of Energy and the NCDC efforts to provide meteorological and solar radiation data on magnetic tape as input to requester's energy design and performance programs. The data were produced from related files TD-9724, which included actual and synthesized data, and CLIMATOGRAPHY OF THE UNITED STATES NO. 81 (1941-1970). Zeros appearing for all values in the temperature, heating degree day, and cooling degree day normals signify that the 1941-1970 period normals were not available for the station.

This file is available for purchase from the NCDC.

FILE TAG: FA00812.

FILE NAME: MARINE CLIMATOLOGICAL SUMMARIES.

TIME PERIOD: January 1961 through December 1970.

GEOGRAPHIC COVERAGE: Global Ocean areas; 80 degrees North to 50 degrees South latitude, 50 degrees West to 170 degrees West longitude.

FILE SIZE: 10 publications, 73 microfiche.

FORMAT: Annual publications.

FILE STRUCTURE: There are ten volumes of this publication file, one volume for each year 1961 through 1970. They are on microfiche and filed in the NCDC archives. Each volume is on seven microfiche except for 1964 which is on nine and 1965 which is on eight.

CONTENTS: The tables present monthly and annual observed frequencies of selected visibility, specified weather conditions, total cloud amount with the mean total and low cloud amount, dry-bulb temperature, dew-point temperature, sea surface temperature, air-sea temperature difference, atmospheric pressure in 2-millibar intervals with means for the 0000, 0600, 1200, and 1800 GMT observation times, and wind force by 30 degree direction sectors. Also included are seasonal tables of observed frequencies of wave heights and periods by 30 degree direction sectors and for all directions combined. Cloud amount is in OKTAS (eights), temperature in degrees Celsius, atmospheric pressure in millibars, wind force in Beaufort scale, visibility in nautical miles, wave height in meters, and wave period in seconds.

ABSTRACT: The primary source of data used to produce this file was magnetic tape files TD-1129 and TD-9760. This series of publications was prepared and published in cooperation with the World Meteorological Organization (WMO). This file is available for purchase from the NCDC.

Other WMO members with assigned areas of responsibility have published similar MARINE CLIMATOLOGICAL SUMMARIES for selected locations in their areas of responsibility. These summaries may be obtained from the following:

Hong Kong                      Director, Royal Observatory  
Nathan Road, Kowloon  
Hong Kong

Federal Republic of Germany	Deutscher Wetterdienst-Seewetteramt D2 Hamburg 4 Bernhard-Nocht-Strasse 76 Federal Republic of Germany
India	Deputy Director-General of Observatories (Climatology and Geophysics) Meteorological Office Poona 5, India
Japan	Marine Division Japan Meteorological Agency 1-3-4, Ote-Machi, Chiyoda-Ku Tokyo, Japan
Netherlands	Koninklijk Nederlands Meteorologisch Instituut Utrechtseweg 297, De Bilt Netherlands
United Kingdom	Meteorological Office London Road Bracknell Berkshire RG12 2SZ England
U.S.S.R.	Moscow Branch of the State Scientific Research Institute of Hydrometeorological Information World Data Center Ulica Tchikovskogo No. 28/35 Moscow, U.S.S.R.

FILE TAG: FA00820.

FILE NAME: MARINERS WORLDWIDE CLIMATIC GUIDE TO TROPICAL STORMS AT SEA.

TIME PERIOD: 1871-1973.

GEOGRAPHIC COVERAGE: Global Ocean areas.

FILE SIZE: 10 microfiche.

FORMAT: Atlas type publication containing charts of narrative information, photographs, and tropical storm analyses.

FILE STRUCTURE: This historical publication is on microfiche and filed in the NCDC archives.

CONTENTS: The publication provides narrative information about where and when tropical storms occur, their frequency of occurrence, and the general paths they follow. The narrative descriptions are supplemented with numerous charts, graphs, and diagrams. Also included are aerial, satellite, and surface photographs of tropical storms, and average sea conditions from 1/4-foot waves to greater than 37-foot waves associated with wind speeds from calm to 130 knots. The charts are presented in two sections: Storm Track and Frequency Maps, and Tropical Cyclone Roses.

The Track Frequency Maps section provides charts by season, and/or by 10- to 30-day intervals, during the tropical storm season for the North Atlantic, Eastern North Pacific, Western North Pacific, Southeast Indian, Southwest Indian, and Southwest Pacific Ocean basins, and the Arabian Sea, Bay of Bengal, and Indochina oceanic areas. Each chart presents tracks preferred by tropical storms and their frequency along these tracks; and isopleths showing the scalar mean (average) speed in knots of storm movements based on 12 hour displacements.

The Tropical Cyclone Roses section presents monthly and annual charts for various storm stages (tropical cyclone, tropical storm, hurricane, and tropical storm - hurricane combined) for the North Atlantic (including the Caribbean and Gulf of Mexico), Eastern North Pacific, Western North Pacific, Southwest Pacific and Australian area (including the Southeastern Indian Ocean), South Indian, and North Indian (including the Bay of Bengal and Arabian Sea) Ocean basins. The storm roses are presented for five degree latitude-longitude quadrangles. Each storm rose depicts statistics on the direction and speed of 12-hourly movements for tropical cyclone centers. The probability, in percent, of having at least one storm in any given year is also shown.

ABSTRACT:

This 425 page GUIDE was prepared by the NCDC and published in 1974 by direction of the Commander, U.S. Naval Oceanography Command as NAVAIR 50-1C-61. The data used to produce the main portion of this GUIDE are in related file TD-9636.

This file is available for purchase from the NCDC.

FILE TAG: FA00352.

FILE NAME: MONTHLY SUMMARY SOLAR RADIATION DATA.

TIME PERIOD: January 1977 through December 1980.

GEOGRAPHIC COVERAGE: United States, Puerto Rico, and Guam.

FILE SIZE: 82 microfiche.

FORMAT: Monthly publications.

FILE STRUCTURE: These historical publications are on microfiche and filed in the NCDC archives. The solar radiation data are also available in related magnetic tape file TD-9736.

CONTENTS: Each monthly issue of this publication contains a station index; a NOAA solar radiation network chart; and hourly and daily totals of edited global, direct, and diffuse solar radiation (kilojoules per square meter).

ABSTRACT: Solar radiation data from 1952 through 1976, either actual or synthesized are available in related magnetic tape file TD-9724. Although solar radiation data, daily or hourly, are available in other historical publications for previous years, much of those data are considered questionable.

This file is available for purchase from the NCDC.



FILE TAG: FA00810.

FILE NAME: RIVER FORECASTS PROVIDED BY THE NATIONAL WEATHER SERVICE.

TIME PERIOD: 1972-1980.

GEOGRAPHIC COVERAGE: United States.

FILE SIZE: 18 microfiche.

FORMAT: Narrative information and tabular data.

FILE STRUCTURE: Each annual publication, 1972 through 1980, is on two microfiche and filed in the NCDC archives.

CONTENTS: Narrative information in each annual publication describes in detail the river forecasts and warning services, as well as other hydrological services, provided by the National Weather Service. Tabular data include river forecast points, highest stages at National Weather Service river gages, and record high stages at river gage locations prior to gage records.

ABSTRACT: The first annual issue of RIVER FORECASTS PROVIDED BY THE NATIONAL WEATHER SERVICE was in 1972 and continued through the annual issue for 1980. The annual issues were prepared by the National Weather Service and published by the NCDC. The annual publications were issued to provide users information on the various sources of river forecasts, warning services, and other hydrological services.

This file is available for purchase from the NCDC.

FILE TAG: FA00040.

FILE NAME: SOLAR RADIATION ENERGY RESOURCE ATLAS OF THE UNITED STATES.

TIME PERIOD: 1953-1975.

GEOGRAPHIC COVERAGE: United States and Puerto Rico.

FILE SIZE: 683 microfiche, one publication.

FORMAT: Monthly and annual analyzed charts and statistical summaries.

FILE STRUCTURE: This Atlas (Stock No. 061-000-00570-6) is available for purchase from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402. Microfiche of each station's statistical summaries and the Atlas are filed in the NCDC archives. The Atlas is on 25 microfiche.

CONTENTS: The Atlas contains monthly and annual charts of the United States depicting:

1. Global solar radiation,
2. Direct normal solar radiation,
3. Diffuse solar radiation, and
4. Weather.

Also included are Solar radiation graphical plots for 26 SOLMET stations.

Each microfiche contains statistical summaries of insolation and meteorological data. The information appears in the form of tables and graphs. Each of the four types of microfiche has its own standard format. Three apply to ERSATZ stations and one to SOLMET stations as follows:

Type I - Atlas Tables and Graphs	(SOLMET)
Type II - Solar Atlas Tables	(ERSATZ)
Type III - Typical Year Cumulative Frequency Distribution Function (CDF) Plots	(ERSATZ)
Type IV - Typical Year Tables	(ERSATZ)

ABSTRACT:

The SOLAR RADIATION ENERGY RESOURCE ATLAS OF THE UNITED STATES presents the geographical, seasonal (monthly), and diurnal (hourly, daily) distribution of the available solar radiation energy resources in the United States together with relevant meteorological data. This information is presented in the form of contour maps and graphical plots. More detailed information than that presented in the Atlas are on microfiche. This includes for each station, in most cases; Atlas Tables and Graphs, Solar Atlas Tables, Typical Year Cumulative Frequency Distribution Function (CDF) Plots, and Typical Year Tables.

This Atlas was prepared and published by the Solar Energy Research Institute, U. S. Department of Energy, Golden, Colorado. The primary source of data utilized to produce the publication and microfiche was the NCDC magnetic tape TD-9724 files which includes rehabilitated solar radiation for 27 stations and ERSATZ (synthesized) solar radiation for 225 stations along with each station's collateral meteorological data.

This file is available for purchase from the NCDC.

FILE TAG: FA00809.

FILE NAME: STORAGE-GAGE PRECIPITATION DATA FOR WESTERN UNITED STATES.

TIME PERIOD: January 1955 through December 1976.

GEOGRAPHIC COVERAGE: Selected remote stations; Western United States.

FILE SIZE: 21 microfiche.

FORMAT: Tabular data in annual publications.

FILE STRUCTURE: This historical publications file is on microfiche and filed in the NCDC archives.

CONTENTS: Information provided in each annual publication is station name, observation date, amount of precipitation (ins.) since last observation, and in some cases snow on the ground (in.). Each publication also contains a station index and locator map.

ABSTRACT: This annual publication, issued from 1955 through 1976, presented precipitation data and a station index of STORAGE-GAGE PRECIPITATION DATA FOR WESTERN UNITED STATES for locations in remote areas in the States of Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming that are equipped with storage precipitation gages that require reading and maintenance only at monthly or seasonal intervals. It also contained a station location map for each State or portion of a State. This data bulletin was terminated as a separate publication with the data for the 1975-1976 season.

Prior to 1940, some storage-gage station precipitation data were published in monthly issues of CLIMATOLOGICAL DATA for the appropriate State. From January 1940 through August 1948, available storage-gage precipitation data were published for river basin areas (rather than for States) in the HYDROLOGIC BULLETINS. Publication of these data again reverted to the CLIMATOLOGICAL DATA on an annual basis (for the season July through June) in the June 1949, 1950, and 1951 issues and July 1952, 1953, 1954, 1955, and 1956 issues.

This file is available for purchase from the NCDC.

FILE TAG: FA00814.

FILE NAME: SUMMARY OF SYNOPTIC METEOROLOGICAL OBSERVATIONS - COASTAL MARINE AREAS.

TIME PERIOD: 1850-1979; the number of years data utilized in the summaries for each coastal marine area depends on the amount of data available and the date of publication (updated periodically).

GEOGRAPHIC COVERAGE: Global coastal marine areas.

FILE SIZE: 960 microfiche.

FORMAT: Monthly and annual frequency distribution tables (summaries) for each sub-area in a specified coastal marine area.

FILE STRUCTURE: These publications are placed on microfiche and filed in the NCDC archives. The number of microfiche for each of the coastal marine areas is as follows;

1. East African and Selected Island (47),
2. West African and Selected Island (31),
3. Alaska and British Columbia (47),
4. Southeast Asian (40),
5. Southwest Asian (66),
6. Australian (31),
7. Caribbean and Nearby Island (52),
8. Central American West Coast (15),
9. Chesapeake Bay (6),
10. Chinese-Philippine (55),
11. Hawaiian and Selected North Pacific Islands (51),
12. Indonesian (58),
13. Japanese and Korean (99),
14. Mediterranean (99),
15. North American (59),
16. Siberian (36),
17. South American (52),
18. Selected South Pacific Islands (44),
19. Western European (72).

CONTENTS: Data units used in this file are; wind direction (8 points), wind speed (kts), cloud, sea, and wave heights (ft), wave period (seconds), cloud amount (8ths), visibility (nautical miles), temperature (Deg. F), relative humidity (%), and atmospheric pressure (mb). Each volume presents the following monthly and annual tables for each sub-area:

Table 1 - Percentage frequency of weather occurrence by wind direction.

Table 2 - Percentage frequency of weather occurrence by hour.

- Table 3 - Percentage frequency of wind direction by speed and by hour and hour groups; the mean wind speed by direction is also shown.
- Table 4 - Percentage frequency of wind speed by hour and mean speed by hour.
- Table 5 - Percentage frequency of total cloud amount by wind direction and the mean cloud amount by wind direction.
- Table 6 - Percentage frequency of ceiling heights and no ceiling by wind direction.
- Table 7 - Cumulative percent frequency of simultaneous occurrence of ceiling height and visibility, and percentage frequency of low clouds.
- Table 8 - Percent frequency of wind direction versus occurrence or non-occurrence of precipitation and varying values of visibility.
- Table 9 - Percent frequency of wind direction versus speed with varying values of visibility.
- Table 10 - Percent frequency of ceiling heights and no ceiling by hour.
- Table 11 - Percent frequency of visibility by hour.
- Table 12 - Cumulative percent frequency of ranges of visibility and ceiling height by hour.
- Table 13 - Percent frequency of relative humidity by air temperature.
- Table 14 - Percent frequency of wind direction by air temperature.
- Table 15 - Means, extremes, and percentiles of air temperature by hour.
- Table 16 - Percent frequency of relative humidity by hour.
- Table 17 - Percent frequency of air temperature and the occurrence of fog (without precipitation) versus air-sea temperature difference.
- Table 18 - Percent frequency of surface wind speed and direction versus sea height.
- Table 19 - Percent frequency of wave height versus wave period.

Table 20 - Monthly and annual percent frequencies and means of sea surface temperature.

Table 21 - Monthly and annual average sea level pressures by hour. Monthly extremes and percentile values are also shown.

**ABSTRACT:**

The publications in this file were prepared for the U.S. Naval Oceanography Command by the NCDC. Data utilized for producing these publications are available in magnetic tape TD-1129 and TD-9760 files.

This file is available for purchase from the NCDC.

FILE TAG: FA00027.

FILE NAME: SUMMARY OF SYNOPTIC METEOROLOGICAL OBSERVATIONS FOR GREAT LAKE AREAS.

TIME PERIOD: January 1960 through December 1973.

GEOGRAPHIC COVERAGE: United States - Canada Great Lake areas.

FILE SIZE: 17 microfiche.

FORMAT: Monthly and annual frequency distribution tables for each area.

FILE STRUCTURE: These historical publications are on microfiche and filed in the NCDC archives as follows;

1. Volume 1 - Lake Ontario & Lake Erie, on 4 microfiche,
2. Volume 2 - Lake Huron & Georgian Bay, on 5 microfiche,
3. Volume 3 - Lake Michigan, on 3 microfiche,
4. Volume 4 - Lake Superior, on 5 microfiche.

The data utilized for preparing these publications are in the magnetic tape TD-1100 files. There is one magnetic tape each for Lake Superior, Lake Huron, Lake Michigan, Lake Erie, and Lake Ontario.

CONTENTS: Each volume presents the following monthly and annual tables for each sub-area:

Table 1 - Percentage frequency of weather occurrence by wind direction.

Table 2 - Percentage frequency of weather occurrence by hour.

Table 3 - Percentage frequency of wind direction by speed and by hour and hour groups; the mean wind speed by direction is also shown.

Table 4 - Percentage frequency of wind speed by hour and mean speed by hour.

Table 5 - Percentage frequency of total cloud amount by wind direction and the mean cloud amount by wind direction.

Table 6 - Percentage frequency of ceiling heights and no ceiling by wind direction.

Table 7 - Cumulative percent frequency of simultaneous occurrence of ceiling height and visibility and percentage frequency of low clouds.



Table 8 - Percent frequency of wind direction versus occurrence or non-occurrence of precipitation and varying values of visibility.

Table 9 - Percent frequency of wind direction versus speed with varying values of visibility.

Table 10 - Percent frequency of ceiling heights and no ceiling by hour.

Table 11 - Percent frequency of visibility by hour.

Table 12 - Cumulative percent frequency of ranges of visibility and ceiling height by hour.

Table 13 - Percent frequency of relative humidity by air temperature.

Table 14 - Percent frequency of wind direction by air temperature.

Table 15 - Means, extremes, and percentiles of air temperature by hour.

Table 16 - Percent frequency of relative humidity by hour.

Table 17 - Percent frequency of air temperature and the occurrence of fog (without precipitation) versus air-sea temperature difference.

Table 18 - Percent frequency of surface wind speed and direction versus sea height.

Table 19 - Percent frequency of wave height versus wave period.

Table 20 - Monthly and annual percent frequencies and means of sea surface temperature.

Table 21 - Monthly and annual average sea level pressures by hour. Monthly extremes and percentile values are also shown.

The data units used are: wind direction to 8 compass points; wind speed in knots; cloud, sea, and wave heights in feet; wave period in seconds; cloud amount in OKTAS (eighths); visibility in nautical miles; temperature in degrees Fahrenheit; relative humidity in percent; and atmospheric pressure in millibars.

**ABSTRACT:**

This four volume series of publications presents marine climatic summaries for 13 major Great Lake areas. These data summaries are based on marine surface weather

observations taken on board Great Lakes' vessels in passage during the period January 1960 through December 1973.

This file is available for purchase from the NCDC.

FILE TAG: FA00376.

FILE NAME: SYNOPTIC WEATHER MAPS, DAILY SERIES;  
 PART I - NORTHERN HEMISPHERE SEA-LEVEL AND 500-MILLIBAR CHARTS,  
 PART II - NORTHERN HEMISPHERE DATA TABULATIONS.

TIME PERIOD: PART I; January 1, 1899 through June 30, 1971,  
 PART II; July 1, 1955 through December 31, 1978.

GEOGRAPHIC COVERAGE: Northern Hemisphere.

FILE SIZE: 1,410 microfiche, 232 reels of 35-millimeter microfilm.

FORMAT: Daily surface and 500-millibar constant pressure charts, and daily surface weather and upper air observations.

FILE STRUCTURE: These historical publications are on microforms and filed in the NCDC archives as follows;  
 PART I on 52 reels of 35-millimeter microfilm,  
 PART II on 1,410 microfiche for the period July 1, 1955 through December 31, 1965 and on 180 reels of 35-millimeter microfilm (one per month) from January 1, 1964 through December 31, 1978.

CONTENTS: PART I consists of plotted and analyzed daily maps as follows;

Sea Level Maps

1300 GMT: Jan 1899-Jun 1939  
 1230 GMT: Jul 1939-May 1957  
 1200 GMT: Jun 1957-Jun 1971

500-Millibar Maps

0400 GMT: Dec 1944-Mar 1948  
 0300 GMT: Apr 1948-Dec 1949  
 1500 GMT: Jan 1950-May 1957  
 1200 GMT: Jun 1957-Jun 1971

PART II consists of 1) daily synoptic surface land and surface marine reports for 1200 GMT and 2) daily upper air reports (radiosonde and rawinsonde) for all Northern Hemisphere stations for 0000 GMT. Winds aloft data by constant heights for North American stations only were included from July 1, 1955 through December 31, 1970 for several times each day.

ABSTRACT: PART I - Northern Hemisphere Sea-Level and 500-Millibar Charts is a series of daily synoptic weather maps. It was published from January 1899 through June 1971. Each volume (monthly) of the series contains one sea level map and one 500-millibar map for each day of the month. The 500-millibar charts began with the December 1944 issue.

PART II - Northern Hemisphere Data Tabulations contain daily synoptic surface and upper air reports. Sea level data are presented in two sections; one for land reports and one for marine reports. The publication began with

data for October 1, 1945 and was published on a daily basis through December 31, 1963. Data for November and December 1945 and January 1, 1954 through June 30, 1955 were not compiled. Although formal publication of these data terminated December 31, 1963, subsequent data through December 31, 1978 were compiled and placed on 35-millimeter microfilm.

This file is available for purchase from the NCDC.

FILE TAG: FA00397.

FILE NAME: TROPICAL CYCLONES OF THE NORTH ATLANTIC OCEAN.

TIME PERIOD: 1871-1986.

GEOGRAPHIC COVERAGE: North Atlantic Ocean, Caribbean Sea, and Gulf of Mexico.

FILE SIZE: One publication, 4 microfiche.

FORMAT: Annual tracking charts.

FILE STRUCTURE: A stock of this publication is maintained by the NCDC. Microfiche of the publication are filed in the NCDC archives. In addition, the historical data are available in the magnetic tape TD-9697 file from 1886 through the latest calendar year.

CONTENTS: Charts depicting the following are included;

1. Tropical cyclone tracks for each year,
2. Tracks for "all" tropical cyclones by months, May through December, and
3. Tracks for all tropical cyclones by 10- (or 11-) day periods June 1 through November 30.

ABSTRACT: This publication consolidates the records of seasonal and chronological occurrences of tropical cyclones in the North Atlantic Ocean including the Caribbean Sea and Gulf of Mexico. Previous publications were U.S. Weather Bureau Technical Paper No. 36 (1886-1958) and No. 55 (1871-1963), and Tropical Cyclones of the North Atlantic (1871-1980). Narrative information includes a classification of North Atlantic tropical cyclones, discussion of the characteristics of tropical cyclones, data sources used, accuracy of tracks and intensity classifications, and North Atlantic tropical cyclone tracks.

North Atlantic Tropical Cyclone tracking charts for years subsequent to 1980 are published in the December issues of STORM DATA.

This file is available for purchase from the NCDC.

FILE TAG: FA00372.

FILE NAME: U. S. AIR FORCE AWS CLIMATOLOGICAL BRIEF.

TIME PERIOD: Variable periods of record 1940 through the present (updated periodically).

GEOGRAPHIC COVERAGE: Selected U. S. Military and commercial airports, worldwide.

FILE SIZE: 481 climatological briefs, 16 microfiche.

FORMAT: Monthly and annual averages, extremes, and percent frequency tables.

FILE STRUCTURE: Historical and current climatological briefs are placed on microfiche and filed in the NCDC archives.

CONTENTS: For the period of record summarized on each climatological brief;

1. Monthly and annual tables of;
  - a. mean and extreme daily maximum and minimum temperatures (Deg. F),
  - b. mean temperature (Deg. F),
  - c. mean, maximum, minimum, and 24-hour maximum precipitation (in.),
  - d. mean, maximum, and 24-hour maximum snowfall (in.),
  - e. twice daily mean relative humidity (%),
  - f. mean vapor pressure (in. Hg),
  - g. mean dew point temperature (Deg. F),
  - h. pressure altitude (ft.) 99.95% probability,
  - i. prevailing wind direction (16 points) and mean and maximum wind speed (kts.),
  - j. mean cloud cover (10ths).
2. Monthly and annual mean number of days occurrence of;
  - a. precipitation equal to or greater than 0.01 and 0.5 inch,
  - b. snowfall equal to or greater than 0.1 and 1.5 inch,
  - c. thunderstorms,
  - d. fog with visibility less than 7 miles,
  - e. maximum temperature equal to or greater than 90 and 95 degrees Fahrenheit,
  - f. minimum temperature equal to or less than 32 and 40 degrees Fahrenheit.
3. Monthly and annual percent frequency tables (3-hourly and all hours) of;
  - a. ceiling less than 3000 feet and/or visibility less than 3 miles,

- b. ceiling less than 1500 feet and/or visibility less than 3 miles,
- c. ceiling less than 1000 feet and/or visibility less than 2 miles.
- d. ceiling less than 200 feet and/or visibility less than 1/2 mile.

**ABSTRACT:**

These one-page climatological briefs are prepared by the U. S. Air Force, Air Weather Service. The primary source of data utilized in the tabulations is the Record of Surface Weather Observations (MF1-10) recorded at U. S. Military installations worldwide. Some of the climatological briefs are updated every 5 to 10 years, depending on military requirements.

This file is available for purchase from the NCDC.

FILE TAG: FA00373.

FILE NAME: U. S. NAVY STATION CLIMATOLOGICAL SUMMARY.

TIME PERIOD: Variable periods of record 1940 through the present (updated periodically).

GEOGRAPHIC COVERAGE: Selected U. S. Navy and commercial airports, worldwide.

FILE SIZE: 77 publications.

FORMAT: Monthly and annual averages and extremes, percent frequencies, and sequential tables.

FILE STRUCTURE: A stock of these climatological summaries is maintained by the NCDC.

CONTENTS: For the period of record summarized on each climatological summary;

1. Monthly and annuals tables of;
  - a. mean and extreme daily maximum and minimum temperatures (Deg. F),
  - b. mean temperature (Deg. F),
  - c. mean, maximum, minimum, and 24-hour maximum precipitation (in.),
  - d. mean, maximum, and 24-hour maximum snowfall (in.),
  - e. twice daily mean relative humidity (%),
  - f. mean vapor pressure (in. Hg),
  - g. mean dew point temperature (Deg. F),
  - h. pressure altitude (ft.) 99.95% probability,
  - i. prevailing wind direction (16 points) and mean and maximum wind speed (kts.),
  - j. mean cloud cover (10ths).
2. Monthly and annual mean number of days occurrence of;
  - a. precipitation equal to or greater than 0.01 and 0.5 inch,
  - b. snowfall equal to or greater than 0.1 and 1.5 inch,
  - c. thunderstorms,
  - d. fog with visibility less than 7 miles,
  - e. maximum temperature equal to or greater than 90 and 95 degrees Fahrenheit,
  - f. minimum temperature equal to or less than 32 and 40 degrees Fahrenheit.
3. Monthly and annual percent frequency tables (3-hourly and all hours) of;
  - a. ceiling less than 5000 feet and/or visibility less than 5 miles,



- b. ceiling less than 1000 feet and/or visibility less than 3 miles,
- c. ceiling less than 600 feet and/or visibility less than 1 mile,
- d. ceiling less than 200 feet and/or visibility less than 1/2 mile.

4. Monthly and annual sequential tables of mean temperature (Deg. F), total precipitation (in.), heating degree days and cooling degree days (base 65 Deg. F).

#### ABSTRACT:

These 4-page climatological summaries are published by the U. S. Navy Oceanography Command for U. S. Navy, U. S. Marine, and selected commercial airports throughout the world. They are revised, updated and reprinted periodically, depending on U. S. Navy requirements.

This file, which is available for purchase from the NCDC, is currently available for the following locations;

Adak, Alaska	Lakehurst, New Jersey
Agana, Guam	Lemoore, California
Alameda, California	London, England
Albany, Georgia	Long Beach, California
Andrews AFB, Maryland	Mayport, Florida
Asheville, North Carolina	McMurdo, Antarctica
Atlanta, Georgia	Memphis, Tennessee
Atsugi, Japan	Meridian, Mississippi
Barbers Point, Hawaii	Midway Island, Pacific Ocean
Beaufort, South Carolina	Miramar, California
Bermuda	Moffett Field, California
Brunswick, Maine	Monterey, California
Camp Pendleton, California	Naples, Italy
Cecil Field, Florida	New Orleans, Louisiana
Charleston, South Carolina	New River, North Carolina
Chase Field, Texas	Norfolk, Virginia
Cherry Point, North Carolina	Oceana, Virginia
China Lake, California	Patuxent River, Maryland
Corpus Christi, Texas	Pearl Harbor, Hawaii
Cubi Point, Philippines	Pensacola, Florida
Dallas, Texas	Point Mugu, California
Detroit, Michigan	Quantico, Virginia
Diego Garcia, Indian Ocean	Quonset Point, Rhode Island
El Toro, California	Roosevelt Roads, Puerto Rico
Fallon, Nevada	Rota, Spain
Futenma, Okinawa	San Clemente Island, California
Glenview, Illinois	San Diego, California
Glynco, Virginia	San Nicolas Island, California
Guantanamo Bay, Cuba	Santa Ana, California
Hallett Station, Antarctica	Saufley Field, Florida
Imperial Beach, California	Sigonella, Italy
Iwakuni, Japan	Souda Bay, Crete
Jacksonville, Florida	South Weymouth, Massachusetts

Kadena, Okinawa  
Kaneohe Bay, Hawaii  
Keflavik, Iceland  
Kenitro, Morocco  
Key West, Florida  
Kingsville, Texas

Whidbey Island, Washington  
Whiting Field, Florida  
Willow Grove, Pennsylvania  
Yokosuka, Japan  
Yuma, Arizona

FILE TAG: FA00821.

FILE NAME: U. S. NAVY MARINE CLIMATIC ATLAS OF THE WORLD.

TIME PERIOD: 1854-1978; Variable period of record for each volume.

GEOGRAPHIC COVERAGE: Global ocean areas.

FILE SIZE: 4 reels of 35-millimeter microfilm.

FORMAT: Analyzed average climatic charts.

FILE STRUCTURE: The nine volumes of the U. S. Navy Marine Climatic Atlas of the World are grouped on each reel of 35-millimeter microfilm and filed in the NCDC archives as follows;

1. Volume I, North Atlantic Ocean (1974) and Volume II, North Pacific Ocean (1977),
2. Volume III, Indian Ocean (1976) and Volume IV, South Atlantic Ocean (1978),
3. Volume V, South Pacific Ocean (1979) and Volume VI, Arctic Ocean (1963),
4. Volume VII, Antarctic Ocean (1965); Volume VIII, The World (1969); and Volume IX, World-Wide Means and Standard Deviations (1981).

CONTENTS: Meteorological isopleth analyses charts, by month, for surface air temperature (Deg. C), temperature extremes (Deg. C) and temperature-humidity index (Deg. C), sea surface temperature (Deg. C), relative humidity (%), precipitation (occurrence), visibility (nautical miles), cloud cover (8ths), ceiling (ft.) and visibility (nautical miles), wind-visibility-cloudiness, sea level pressure (mb), and mean wind speed (kts.), and waves (period in seconds/height in meters). Oceanographic monthly charts of sea ice concentrations and extremes; seasonal charts of sea surface currents, types of tides and tide ranges; and summaries of ice freezeup and breakup dates where appropriate.

ABSTRACT: This file was published under the direction of the U. S. Navy Oceanographic Command and prepared by the NCDC. The data used to prepare the meteorological portion of this file are available on magnetic tape file TD-9760. Related magnetic tape files are TD-9781 and TD-9937.

This file is available for purchase from the NCDC.

FILE TAG: FA00056.

FILE NAME: WORLDWIDE AIRFIELD SUMMARIES.

TIME PERIOD: Variable; using various periods of data available previous to 1974.

GEOGRAPHIC COVERAGE: Selected stations; Global.

FILE SIZE: 232 microfiche.

FORMAT: Monthly and annual averages, extremes, and statistical tabulations.

FILE STRUCTURE: Airfield summaries for selected stations in the following areas are on the indicated number of microfiche and filed in the NCDC archives.

<u>Volume</u>	<u>Name</u>	<u>No. Fiche</u>
I	Southeast Asia	9
II (Parts 1 & 2)	Middle East	13
III	Far East	9
IV	Canada-Greenland-Iceland	13
V	Australia-Antarctica	10
VI (Parts 1 & 2)	South America	15
VII	Central America	7
VIII	United States of America	
Part 1	West Coast, Western Mountains, Great Basin	10
Part 2	Rocky Mountains & Northwest Basin	11
Part 3	Central Plains	9
Part 4	Great Lakes	9
Part 5	Mississippi Valley	10
Part 6	Southeastern Region	7
Part 7	East Coast & Appalachian Region	10
Part 8	Alaska & Hawaii	4
IX	Africa	
Part 1	Northern Half	11
Part 2	Southern Half	11
X	Europe	
Part 1	Scandinavia & Northern Europe	9
Part 2	Low Countries & British Isles	10
Part 3	Alps & Southwest Europe	7
Part 4	Mediterranean	7
XI	Eastern Europe & USSR	
Part 1	Eastern Europe	9
Part 2	USSR	9
XII	China, North Korea, Mongolia	
Part 1	China	7
Part 2	China, North Korea & Mongolia	6

CONTENTS:

The data presented are monthly and annual summaries of:

1. Absolute maximum and minimum temperatures (Deg. F),
2. Mean daily maximum and minimum temperatures (Deg. F),
3. Mean number of days with maximum temperature equal to or greater than 90 Deg. F,
4. Mean number of days with minimum temperature equal to or less than 32 or 0 Deg. F,
5. Mean dew-point temperature (Deg. F),
6. Mean relative humidity (%),
7. Mean pressure altitude (feet),
8. Mean precipitation (in.),
9. Mean snowfall (in.),
10. Mean number of days with precipitation equal to or greater than 0.1 inch,
11. Mean number of days with snowfall equal to or greater than 1.5 inch,
12. Mean number of days with an occurrence of visibility less than 0.5 mile,
13. Mean number of days with thunderstorms,
14. Percent frequency surface wind speed equal to or greater than 17 knots,
15. Percent frequency surface wind speed equal to or greater than 28 knots,
16. Percent frequency ceiling less than 5,000 feet and/or visibility less than 5 miles,
17. Percent frequency ceiling less than 1,500 feet and/or visibility less than 3 miles by 3-hourly increments,
18. Percent frequency ceiling less than 300 feet and/or visibility less than 1 mile by 3-hourly increments,
19. Mean number of days with ceiling equal to or greater than 1,000 feet and visibility equal to or greater than 3 miles,
20. Mean number of days with ceiling equal to or greater than 2,500 feet and visibility equal to or greater than 3 miles,
21. Mean number of days with ceiling equal to or greater than 6,000 feet and visibility equal to or greater than 3 miles,
22. Mean number of days with ceiling equal to or greater than 10,000 feet and visibility equal to or greater than 3 miles,
23. Mean number of days ceiling equal to or greater than 2,000 feet and visibility equal to or greater than 3 miles with surface wind speed less than 10 knots,
24. Mean number of days with surface wind speed equal to or greater than 17 knots and no precipitation,
25. Mean number of days with surface wind speed 4 to 10 knots and temperature 33 to 89 Deg. F and no precipitation,
26. Mean number of days with sky cover less than 3/10ths and visibility equal to or greater than 3 miles.

ABSTRACT:

This file is a compilation of climatological data compiled from numerous sources, including foreign publications, by the U. S. Air Force, Air Weather Service. It consists of summaries for approximately 4,000 stations and climatic areas in which they are located. This file is also available in the magnetic tape TD-9647 file.

This file is available for purchase from the NCDC.

FILE TAG: FA00066.

FILE NAME: ANNUAL DEGREE DAYS TO SELECTED BASES; CLIMATOGRAPHY OF THE UNITED STATES NO. 81 (1951-1980), SUPPLEMENT 1.

TIME PERIOD: 1951-1980 (updated decennially).

GEOGRAPHIC COVERAGE: Selected stations; United States, U. S. Pacific Islands, U. S. Virgin Islands, and Puerto Rico.

FILE SIZE: One publication, one microfiche.

FORMAT: Annual computed tabular data by station.

FILE STRUCTURE: A stock of this publication is maintained by the NCDC. In addition, the publication is on microfiche and filed in the NCDC archives.

CONTENTS: The major parameters that make up this file are computed annual averages of 1) heating degree days to bases of 65, 60, 57, 55, 50, 45, and 40 degrees Fahrenheit, and 2) cooling degree days to bases of 70, 65, 60, 57, 55, 50, and 45 degrees Fahrenheit.

ABSTRACT: The primary source of data used to produce this file is magnetic tape TD-9641 files. All data presented in this file are also in related files TD-9641 and DEGREE DAYS TO SELECTED BASES.

This file is available for purchase from the NCDC.

FILE TAG: FA00300.

FILE NAME: COMPARATIVE CLIMATIC DATA.

TIME PERIOD: Variable beginning of record through the present (updated annually).

GEOGRAPHIC COVERAGE: Selected stations; United States, U. S. Pacific Islands, and Puerto Rico.

FILE SIZE: One publication, 12 microfiche.

FORMAT: Monthly and annual tabular tables of normals, means and extremes.

FILE STRUCTURE: Historical annual issues from 1979 through 1984 are stored on 2 microfiche per year and filed in the NCDC archives. The NCDC maintains a stock of the latest annual update.

CONTENTS: Monthly and annual; averages of cloudiness (clear, partly cloudy, cloudy), relative humidity (%), snowfall (in.), and wind speed (mph); mean number of days with minimum temperature 32 Deg. F or less and precipitation 0.01 inch or more; average percent of possible sunshine, highest and lowest temperature (Deg. F), and maximum wind speed (mph) of record. Monthly and annual normals of maximum, minimum, and average temperatures (Deg. F), precipitation (in.), and heating degree days and cooling degree days (base 65 Deg. F).

ABSTRACT: This publication is prepared by the NCDC. Data in it have been extracted from the "Normals, Means, and Extremes" table contained in the annual issue of LOCAL CLIMATOLOGICAL DATA published for individual stations. The stations are listed alphabetically by State. The tables are arranged so that values of the same element can be compared for different locations by use of a single table. Normals tables presented are 30-year averages for the 1941-1970 period in annual issues prior to 1981. Subsequent normals tables present 30-year averages for the period 1951-1980.

This file is available for purchase from the NCDC.



FILE TAG: FA00319.

FILE NAME: CLIMATOGRAPHY OF THE UNITED STATES NO. 20; CLIMATE OF (CITY).

TIME PERIOD: Variable periods of record during the years 1893 through 1980 (updated decennially).

GEOGRAPHIC COVERAGE: Selected stations; United States; U. S. Pacific Islands, U. S. Virgin Islands, and Puerto Rico.

FILE SIZE: 4,497 publications, 323 microfiche.

FORMAT: Decennial publications of normals, means, extremes, and probabilities.

FILE STRUCTURE: Historical and current publications are on microfiche and filed in the NCDC archives. Climate summaries for 1,533 stations using various periods of record from 1893 through 1970 are on 128 microfiche; for 1,063 stations using the period 1951-1970, 71, 72, 73, 74, 75 on 99 microfiche; and for 1891 stations using the period 1951-1980 on 96 microfiche. A stock of the latest two issues is maintained by the NCDC.

CONTENTS: The major parameters that make up this file for the 1951-1980 issue are monthly and annual; normals of mean daily maximum, mean daily minimum, and mean monthly temperatures (Deg. F), precipitation (in.), and snowfall (in.); extremes of high temperature and low temperature with date of occurrence; greatest monthly total precipitation and snowfall with year of occurrence; greatest daily total precipitation with date of occurrence; mean number of days with maximum temperature 90 degrees Fahrenheit and above, and 32 degrees Fahrenheit and below, minimum temperature 32 and 0 degrees Fahrenheit and below, and precipitation equal to or greater than 0.1, 0.5, and 1.0 inch; heating and cooling degree days to selected bases; growing degree units and growing degree units for corn; and freeze and precipitation probabilities.

The 1951-1970, 71, 72, 73, 74, 75 issue contained the above parameters except for heating and cooling degree days to selected bases, growing degree units, and growing degree units for corn. This issue did, however, present monthly and annual sequential tables of maximum, minimum, and average temperature, total precipitation, and total snowfall.

The 1893 through 1970 historical summaries were prepared in various formats, but most of them did present the basic parameters temperature, precipitation, and snowfall.

ABSTRACT:

A program for the publication of uniform climatological summaries for the smaller communities in the United States was started in 1955. Under this plan, cooperation with State and Federal agencies, public groups such as Chambers of Commerce, and state-wide public utilities and industrial organizations was sought, for their preparation and printing. This publication, commonly referred to as substation summaries, was prepared for various periods of record from 1893 through 1970 for approximately 1,533 different stations.

The NCDC began preparing and printing these summaries in the early 1970's. The initial publication was accomplished for 1063 stations using basic data from 1951 through 1970, 1971, 1972, 1973, 1974 or 1975. The period summarized was dependent on data availability at the time of publishment.

The current issue of climatological summaries utilized data for the period 1951-1980 and was prepared and printed for 1,891 stations. Users of this publication can order by station, or at a discount price by state. An index of all the stations with climatological summaries in this file is also available to users.

This file is available for purchase from the NCDC.

FILE TAG: FA00321.

FILE NAME: CLIMATOGRAPHY OF THE UNITED STATES NO. 60; CLIMATE OF (STATE).

TIME PERIOD: Not time dependent (updated decennially).

GEOGRAPHIC COVERAGE: United States, U. S. Virgin Islands, and Puerto Rico.

FILE SIZE: 51 publications, 102 microfiche.

FORMAT: One publication for each state or area.

FILE STRUCTURE: Each historical and current publication in the CLIMATE OF THE STATES series is on one microfiche per state or area per issue and filed in the NCDC archives. A stock of the latest issue is maintained by the NCDC.

CONTENTS: The latest issue of this publication (1976-1978) contains a narrative climatic summary, a means and extremes table for each cooperative station in the state that is in the CLIMATOGRAPHY OF THE UNITED STATES NO. 20 file, and the normals, means, and extremes table from the annual issue of LOCAL CLIMATOLOGICAL DATA for all stations in the state at time of publication. The earlier versions contained normals of temperature and precipitation tables only for stations in the state.

ABSTRACT: The 1976, 1977, 1978 issues of CLIMATOGRAPHY OF THE UNITED STATES NO. 60 were an updated and revised version of a similar series entitled CLIMATES OF THE STATES published between 1959 and 1961 with some subsequent revisions and reprints through 1972. Similar data for earlier years were included in the 1941 U. S. Department of Agriculture Yearbook CLIMATE AND MAN in a section entitled CLIMATES OF THE UNITED STATES.

The means and extremes tables in this issue for cooperative stations utilized data for the periods 1951-1970, 1971, 1972, 1973, 1974, or 1975 that were published in the CLIMATOGRAPHY OF THE UNITED STATES NO. 20 series. The normals, means, and extremes table from LOCAL CLIMATOLOGICAL DATA utilized 1941-1970 data for the normals, and 1941-1975, 1976, or 1977 for the means and extremes.

This file is available for purchase from the NCDC.

FILE TAG: FA00322.

FILE NAME: CLIMATOGRAPHY OF THE UNITED STATES NO. 81; MONTHLY NORMALS OF TEMPERATURE, PRECIPITATION, AND HEATING AND COOLING DEGREE DAYS (State).

TIME PERIOD: 1951-1980 (updated decennially).

GEOGRAPHIC COVERAGE: Selected stations; United States, U. S. Pacific Islands, U. S. Virgin Islands, and Puerto Rico.

FILE SIZE: 53 publications, 271 microfiche.

FORMAT: Monthly and annual normals (30-year averages) for individual stations (cities) in state or area publications.

FILE STRUCTURE: Historical issues and the latest issue of this publication are on microfiche and filed in the NCDC archives as follows;

1. 1921-1950, on one microfiche,
2. 1931-1960 and 1941-1970, both periods combined by state or area on 45 microfiche,
3. 1951-1980, on 53 microfiche by state or area.

For most stations, sequential monthly data used to produce these publications are filed in the NCDC archives as follows;

1. 1941-1970; computer printouts of precipitation, maximum, minimum, and average temperature, by station,
2. 1951-1980; 55 microfiche of precipitation, by state or area,
3. 1951-1980; 52 microfiche of snowfall, by state or area,
4. 1951-1980; 65 microfiche of maximum, minimum, and average temperature, by state or area.

In addition, data represented in these publications are included in magnetic tape TD-9641 files.

A stock of the latest issue of this publication is maintained by the NCDC.

CONTENTS: Each publication in this series presents computed monthly and annual normals of maximum, minimum, and average temperatures (Deg. F), precipitation (in.), heating degree days and cooling degree days (base 65 Deg. F) for each station in the state that had 30 years

of homogeneous data. Also included in each publication is a station index and station locator chart.

**ABSTRACT:**

The 1951-1980 issue of the CLIMATOGRAPHY OF THE UNITED STATES NO. 81 series is an updated version of this same publication for the periods 1931-1960 and 1941-1970. An earlier publication of the same title was published as U. S. WEATHER BUREAU TECHNICAL PAPER NO. 31. It contained normals for the 1921-1950 period, but did not include data for cooperative stations. The normals of maximum and minimum temperatures were not included in issues previous to the 1951-1980 period; cooling degree days were not included in the 1921-1950 and 1931-1960 issues. The primary source of data used to create this file is magnetic tape TD-3220 files.

A normal of a climatological element is the arithmetic mean computed over a time period of three consecutive decades. Homogeneity of instrument exposure and station location is assumed. If no exposure changes have occurred at a station, the normal is estimated by simple averaging the 30 values. Since it is next to impossible to maintain a multiple purpose network of meteorological stations without having some exposure changes, it is first necessary to identify and evaluate these changes and then make adjustments for them if necessary.

After the periods of heterogeneity have been determined, adjustments are applied to remove the heterogeneities into the mean. This is done by comparing the record at the base station, for which the normal is desired, to the records at supplementary stations with homogeneous periods which covers the heterogeneous period at the base station. The difference method is applied to the monthly average maximum and minimum temperature and the ratio method to the monthly total precipitation (reference; Climatology at Work, by Gerald L. Barger, U. S. Weather Bureau, Washington, D. C. 1960). A weighted average of the various partial means of the adjusted and unadjusted record is then prepared to give the normal. The heating and cooling degree day normals are then computed from these temperature normals.

The usual arithmetical procedures were not applied to obtain the heating and cooling degree day normals. The rational conversion formulae developed by H. C. S. Thom (reference Monthly Weather Review Vol. 82, No. 1, January 1954 and Vol. 94, No. 7, July 1966) allows the properly adjusted mean temperature normals to be converted to degree day normals with uniform consistency. In some cases this procedure will yield a small number of degree day values that are unexpected. These cases occur when the standard deviations are computed from a mixed distribution as frequently occurs

during the transition months in the continental United States or during winter months in Alaska.

This file is available for purchase from the NCDC.

FILE TAG: FA00324.

FILE NAME: CLIMATOGRAPHY OF THE UNITED STATES NO. 84; DAILY NORMALS OF TEMPERATURE, HEATING AND COOLING DEGREE DAYS AND PRECIPITATION.

TIME PERIOD: 1951-1980 (updated decennially).

GEOGRAPHIC COVERAGE: Selected stations; United States, U. S. Pacific Islands, and Puerto Rico.

FILE SIZE: 344 publications, 132 microfiche.

FORMAT: Daily, monthly, seasonal, and annual normals (30-year averages) in a publication for each station.

FILE STRUCTURE: Historical issues and the latest issue of this publication are on microfiche and filed in the NCDC archives as follows;

1. 1921-1950; 366 stations on 52 microfiche,
2. 1931-1960; 315 stations on 7 microfiche,
3. 1941-1970; 325 stations on 14 microfiche,
4. 1951-1980; 344 stations on 59 microfiche.

In addition, the 1941-1970 and 1951-1980 data presented in these publications are in magnetic tape TD-9641 files. A stock of the latest issue, 1951-1980, is maintained by the NCDC.

CONTENTS: The major parameters that make up this file are daily, monthly, seasonal, and annual normals (30-year averages) of maximum, minimum, and average temperatures (Deg. F), heating and cooling degree days (base 65 Deg. F), and precipitation (in.).

ABSTRACT: The 1951-1980 issue of the CLIMATOGRAPHY OF THE UNITED STATES NO. 84 series is an updated version of this same publication for the periods 1921-1950, 1931-1960, and 1941-1970. Daily normals of precipitation were not included in the 1941-1970 issue and daily normals of cooling degree days were not included in the 1921-1950 and 1931-1960 issues.

The daily values computed for the normal temperature, precipitation and heating and cooling degree days are not simple means of the observed daily records. They are interpolated from the much less variable monthly normals by use of the normal spline function as described by Greville ("Spline Functions, Interpolation, and Numerical Quadrature," Mathematical Methods of Digital Computers, Volume 2. John Wiley and Sons, Inc.

New York, 1967). The procedure involves construction of a cumulative series of the monthly sums with the sum for each month being assigned to the last of the month. The cumulative series is for an 18 month period (Oct, Nov, Dec, Jan --- Dec, Jan, Feb, Mar) so the interpolation function can adequately fit the end points of the annual series. This process is applied independently to all five elements. No normal values for February 29 are computed; in common practice, normal values for the 28th are used for the 29th in each leap year.

This file is available for purchase from the NCDC.



FILE TAG: FA00325.

FILE NAME: CLIMATOGRAPHY OF THE UNITED STATES NO. 85; DIVISIONAL NORMALS AND STANDARD DEVIATIONS OF HEATING AND COOLING DEGREE DAYS.

TIME PERIOD: 1931-1980 (updated decennially).

GEOGRAPHIC COVERAGE: United States except Hawaii, U. S. Virgin Islands, and Puerto Rico.

FILE SIZE: One publication, 10 microfiche.

FORMAT: Monthly and annual normals and averages with standard deviations for all state climatic divisions in a single publication.

FILE STRUCTURE: This publication is on 4 microfiche and filed in the NCDC archives. The sequential monthly data used to compute these normals and averages are on 3 microfiche for heating degree days and 3 microfiche for cooling degree days and filed in the NCDC archives. The data presented in the publication are also included in magnetic tape TD-9640 files. A stock of this publication is maintained by the NCDC.

CONTENTS: Monthly and annual normals and standard deviations of heating degree days and cooling degree days (base 65 Deg. F) for state climatic divisions for the periods 1931-1960, 1941-1970, and 1951-1980. Monthly and annual averages and standard deviations of heating degree days and cooling degree days (base 65 Deg. F) for state climatic divisions for the period 1931-1980.

ABSTRACT: This publication is the initial issue and the first to present computed values of heating degree days and cooling degree days for state climatic divisions. These normals are the simple arithmetic average of the individual year-month degree day totals for the listed period. Each individual year-month degree day total is estimated from the month's state climatic divisional average temperature and standard deviation of the 50-year series of monthly mean temperatures by applying the rational conversion formulae developed by H. C. S. Thom. The rational conversion formulae (reference; Monthly Weather Review Vol. 82, No. 1, January 1954 and Vol. 94, No. 7, July 1966) allows the properly adjusted mean temperature normals to be converted to degree day normals with uniform consistency. In some cases the procedure will yield degree day values that are unexpected. These cases produce a relatively low number of degree days and are caused by temperature standard deviations that are computed from a mixed distribution as frequently occurs during the spring and fall months in the continental United States or during winter months in Alaska.

A state climatic division represents a region within a state that is, as nearly as possible, climatically homogeneous. Some areas, however, may experience rather extreme variations within a division, e.g., the Rocky Mountain states. The divisions were established to satisfy researchers in hydrology, agriculture, energy supply, etc., who require data averaged over an area of a state rather than for a specific point (station). Hawaii was not included in this publication because the varied topography and the locations of the observing stations do not allow for the establishment of homogeneous climatic divisions. The Virgin Islands data from St. Thomas, St. Croix, and St. John were combined into a three-island average.

This file is available for purchase from the NCDC.

FILE TAG: FA00325.

FILE NAME: CLIMATOGRAPHY OF THE UNITED STATES NO. 85; DIVISIONAL NORMALS AND STANDARD DEVIATIONS OF TEMPERATURE (DEG. F) AND PRECIPITATION (INCHES).

TIME PERIOD: 1931-1980 (updated decennially).

GEOGRAPHIC COVERAGE: United States except Hawaii, U. S. Virgin Islands, and Puerto Rico.

FILE SIZE: One publication, 54 microfiche.

FORMAT: Monthly and annual normals and averages with standard deviations for all state climatic divisions in a single publication.

FILE STRUCTURE: The historical issues and latest issue of this publication are on microfiche and filed in the NCDC archives as follows;

1. 1931-1960 and 1941-1970 periods combined by state or area on 44 microfiche,
2. 1951-1980 on 4 microfiche.

The sequential monthly data used to compute the normals and averages are also on 3 microfiche for precipitation and 3 microfiche for temperature. These data, which includes normals, averages, and sequential, are also in TD-9640 files. A stock of the 1931-1980 publications is maintained by the NCDC.

CONTENTS: Monthly and annual normals and standard deviations of temperature (Deg. F) and precipitation (in.) for each state climatic division for the periods 1931-1950, 1941-1970, and 1951-1980. Monthly and annual averages and standard deviations of temperature (Deg. F) and precipitation (in.) for each state climatic division for the period 1931-1980.

ABSTRACT: The 1951-1980 issue of CLIMATOGRAPHY OF THE UNITED STATES NO. 85 is an updated version of the same publication entitled MONTHLY AVERAGES OF TEMPERATURE AND PRECIPITATION FOR STATE CLIMATIC DIVISIONS for the 1931-1960 and 1941-1970 periods.

Each monthly normal value is the simple arithmetic average of the individual monthly mean temperatures or monthly mean precipitation for the listed period. These individual monthly mean values are obtained by averaging the data for all stations in the state climatic division that furnished both temperature and precipitation records for the month. The sequential monthly mean data are available on microfiche for the period January 1931 through December 1980.

A state climatic division represents a region within a state that is, as nearly as possible, climatically homogeneous. Some areas, however, may experience rather extreme variations within a division, e.g., the Rocky Mountain states. The divisions were established to satisfy researchers in hydrology, agriculture, energy supply etc., who require data averaged over an area of a state rather than for a point (station). Hawaii is not included because the varied topography and the locations of the observing stations do not allow for the establishment of homogeneous climatic divisions. The Virgin Islands data from St. Thomas, St. Croix, and St. John were combined into a three-island average.

This file is available for purchase from the NCDC.

FILE TAG: FA00327.

FILE NAME: CLIMATOGRAPHY OF THE UNITED STATES NO. 90; AIRPORT CLIMATOLOGICAL SUMMARY.

TIME PERIOD: January 1965 through December 1974 (updated decennially).

GEOGRAPHIC COVERAGE: Selected stations; United States and Puerto Rico.

FILE SIZE: 163 publications, 163 microfiche.

FORMAT: Capsule summary, monthly and annual sequential tables, monthly and annual means and extremes, and monthly and annual percentage frequency summaries.

FILE STRUCTURE: These historical publications are on microfiche and filed in the NCDC archives. A stock of these publications is also maintained by the NCDC.

CONTENTS: This series of publications present a capsule summary of aviation weather; a table of monthly and annual means and extremes, sequential tables of monthly and annual values of average daily maximum and minimum temperature (Deg. F), monthly average temperature (Deg. F), total precipitation (in.), total snowfall (in.), total heating-degree days and cooling-degree days (base 65 Deg. F); flying weather statistics; and monthly and annual percentage frequencies of ceiling (feet), visibility (statute miles), and weather conditions by wind direction (16 points) versus wind speed (mph) for both ALL WEATHER and INSTRUMENT FLIGHT RULES.

ABSTRACT: Data utilized to produce these AIRPORT CLIMATOLOGICAL SUMMARIES are in magnetic tape TD-3210 and TD-3280 files.

This file is available for purchase from the NCDC.

FILE TAG: FA00032.

FILE NAME: ENGINEERING WEATHER DATA MANUAL.

TIME PERIOD: 1941-1970 normals, 1965-1974 averages.

GEOGRAPHIC COVERAGE: Primarily U. S. Military Installations, worldwide.

FILE SIZE: 11 microfiche.

FORMAT: Monthly and annual normals and averages, probability statistics, and frequency distribution tables.

FILE STRUCTURE: This historical publication is on microfiche and filed in the NCDC archives.

CONTENTS: Chapter I - Winter Design Data for Heating, and Summer Design and Criteria Data for Air Conditioning for Sites in the United States; and Chapter II - For Sites Outside the United States.

a. Winter Design Data-Heating. Data presented are the dry-bulb temperatures that are equaled or exceeded 99% and 97.5% of the time, on the average, during the months of December, January, and February. Also included are data on the prevailing (Pvlg) wind direction, and the average wind speed that occurs coincidentally with the 97.5% dry-bulb winter design temperature.

b. Degree Days-Heating. Data presented are the mean annual number of degree days, using a base of 65 Deg. F, for the period 1965 through 1974, or where available, the 30-year "normal" period, 1941 through 1970 inclusive.

c. Summer Design Data-Air Conditioning. Data presented are the dry-bulb and wet-bulb temperatures (Deg. F) that are equaled or exceeded 1%, 2.5%, and 5% of the time, on the average, during the months of June, July, August, and September. The Mean Coincident Wet-Bulb temperatures (MCWB) listed with the 1%, 2.5%, and 5% dry-bulb summer design temperatures are the averages of those wet-bulb temperatures which occur coincidentally with the respective dry-bulb summer design temperatures. The mean daily range (difference between daily maximum and daily minimum temperature) is the average of all daily dry-bulb temperature ranges for days on which the 2.5% dry-bulb summer design temperature is reached or exceeded. The prevailing (Pvlg) wind direction is the wind direction occurring most frequently with the 2.5% dry-bulb summer design temperature.

d. Summer Criteria Data-Air Conditioning. Data presented are the number of hours, on the average, that the dry-bulb temperatures of 93 Deg. F and 80 Deg. F and the wet-bulb temperature of 73 Deg. F and 67 Deg. F are equaled or exceeded during the months of May through October.

Chapter III - Data for Use in Calculating Energy Consumption Estimates for Sites in the United States; and Chapter IV - For Sites Outside the United States. The data, based upon 24-hourly observations per day for at least a five-year period, are the monthly mean frequencies of dry-bulb temperatures, by 5-degree intervals, for three hour groups and for all hours. The Mean Coincident Wet-Bulb (MCWB) temperature shown is the mean of all the wet-bulb temperatures that were observed coincidentally with the dry-bulb temperatures in that particular 5-degree interval.

Chapter V - Cooling Degree Day Data for Sites in the United States; and Chapter VI - For Sites Outside the United States. The data presented are the mean annual cooling-degree day totals, using a base of 65 Deg. F, for the period 1965 through 1974, inclusive, or where available, the 30-year "normal" period 1941-70, inclusive.

**ABSTRACT:**

This U. S. Department of Defense publication was prepared by the U. S. Air Force, Air Weather Service, Environmental Technical Applications Center as AF MANUAL 88-29, Facility Design and Planning, Engineering Weather Data.

This file is available for purchase from the NCDC.

FILE TAG: FA00058.

FILE NAME: GLOBAL ATMOSPHERIC BACKGROUND MONITORING FOR SELECTED ENVIRONMENTAL PARAMETERS - BAPMoN DATA.

TIME PERIOD: July 1971 through December 1982 (updated annually with a 4-year lag).

GEOGRAPHIC COVERAGE: Selected global stations.

FILE SIZE: 6 publications, 68 microfiche.

FORMAT: Monthly and selected daily data; monthly means.

FILE STRUCTURE: Yearly publications are stocked by the NCDC for the latest three years. These publications are also published by and available from the Secretariat of the World Meteorological Organization, Case postale N° 5, CH-1211, Geneva 20, Switzerland, beginning with the 1981 two volume publication. The historical publications are on microfiche and filed in the NCDC archives.

CONTENTS: All issues include monthly tables of atmospheric turbidity. They present the daily average and minimum values for B (500 and 380 nanometers) and Alpha together with the number of observations each day. The daily Alpha value is the average for all observations taken that day. The monthly means (M0) for Alpha and Beta are computed from the monthly mean of all observed B values and also from the monthly mean (\*) of the published daily mean B values.

Monthly data were initially presented for total precipitation and for 12 separate chemical analyses; pH, conductivity, sodium, potassium, magnesium, calcium, chloride, amonium, nitrate, sulfate, acidity, and alkalinity in the 1972 issue.

Selected daily atmospheric carbon dioxide (CO<sub>2</sub>) flask sample measurements were added in the 1975 issue.

Continuous CO<sub>2</sub> measurements for Monte Cimone, Italy, and daily suspended particulate matter for Appelscha, Netherlands were added to the 1978 issue. The continuous CO<sub>2</sub> results for 4 locations in the Federal Republic of Germany appeared for the first time in the 1979 report covering the years 1974 through 1979. Corrections were made to the 1977 data and these were added to the 1980 issue. Suspended particulate matter for three to five locations are presented in 1979 and subsequent reports. Future editions of this publication are expected to include increasing amounts (more locations) of CO<sub>2</sub> and suspended particulate data.



ABSTRACT:

GLOBAL ATMOSPHERIC BACKGROUND MONITORING FOR SELECTED ENVIRONMENTAL PARAMETERS - BAPMoN DATA is sponsored by the World Meteorological Organization (WMO) and the Global Environmental Monitoring System (GEMS) in cooperation with the U. S. National Oceanic and Atmospheric Administration (NOAA) and the U. S. Environmental Protection Agency (EPA). The publication presents data produced from observational records submitted from stations in the WMO Background Air Pollution Monitoring Network (BAPMoN), and includes data from additional cooperation stations. The BAPMoN stations operate according to several resolutions of the WMO Executive Committee. The WMO network includes the following three categories of stations:

1. Baseline Air Pollution Stations. These stations are located in areas where no significant changes in land use are anticipated for at least 50 years within several 100 km in all directions from each station - and carry out a rather sophisticated program.
2. Regional Air Pollution Stations perform a simple observation program. The siting of these stations follows in principle the same requirements as needed for baseline stations but is less critical than that of the baseline stations. Regional stations should be located away from major urban centers. An additional criterion is that the stations be expected to have sufficient longevity as to provide representative trends in regional values of aerosol optical depth and precipitation chemistry.
3. Regional Stations with Extended Programs. These regional stations carry out more than the minimum program. In addition to meeting or exceeding the criteria for a regional station, they should be located in a remote area (preferably mountainous) and not be influenced by any pollution sources within a 100-km radius.

Initially, only turbidity data were processed and published; the annual publication began in 1971 with data for July 1970 through December 1971 and was known as ATMOSPHERIC TURBIDITY FOR THE WORLD. As precipitation chemistry data were added, the 1972 publication name was changed to ATMOSPHERIC TURBIDITY AND PRECIPITATION CHEMISTRY DATA FOR THE WORLD. In 1975, with the addition of flask sample carbon dioxide data, the title became GLOBAL MONITORING OF THE ENVIRONMENT FOR SELECTED ATMOSPHERIC CONSTITUENTS. In 1978, when continuous carbon dioxide data and suspended particulate data were added, the publication title was changed to its current name. Beginning with the 1979 annual publication, turbidity values are presented in

natural logarithms and called aerosol optical depth. Prior to 1979, turbidity values were given in common logarithms. Beginning with the 1981 data year, BAPMoN data are published in two volumes by the WMO - Volume I is the Atmospheric Aerosol Optical Depth data and Volume II will contain the remaining BAPMoN measurements.

The aim of the WMO, through its air monitoring program, is to determine current levels of atmospheric pollution and, more importantly, to identify long-term trends in the concentration of significant constituents which may affect the environment sufficiently to induce climatic changes. This publication presents the results of the air monitoring program as reported by participating member countries. Data for publication are submitted as follows:

1. Member countries send atmospheric aerosol optical depth observations to the National Climatic Data Center (NCDC), and the edited data serve as input to the tabulations given in Volume I published by the WMO.
2. Each country submitting precipitation chemistry, continuous (or grab sample) carbon dioxide, or suspended particulate data is responsible for the collection and analysis of the data and their transmission to the NCDC. The data are then passed on to the EPA where they are processed prior to publication in Volume II by the WMO.
3. Geophysical Monitoring for Climatic Change (GMCC) stations submit atmospheric flask sample carbon dioxide data to NOAA in Boulder, Colorado, for analysis. Data tables are prepared and sent to the WMO for inclusion in Volume II.

The turbidity data (atmospheric aerosol optical depth) are also in magnetic tape TD-9789 files in the NCDC archives.

This file is available for purchase from the NCDC.

FILE TAG: FA00051.

FILE NAME: HISTORICAL CLIMATOLOGY SERIES 3-(1 thru 11).

TIME PERIOD: 1895-1983.

GEOGRAPHIC COVERAGE: Contiguous United States.

FILE SIZE: 11 publications, 48 microfiche.

FORMAT: Monthly and seasonal analyzed charts.

FILE STRUCTURE: A stock of each of the HISTORICAL CLIMATOLOGY SERIES 3-(1 thru 11) publications is maintained by the NCDC. In addition, the publications are on microfiche and filed in the NCDC archives.

CONTENTS: The preface of each publication in this series provides a narrative description of the analytical techniques utilized to prepare the charts. Each publication contains analyzed isopleth charts which corresponds to the title.

ABSTRACT: Charts which depict the areal distribution of climatic elements or parameters are often used in studies of climate variability. The atlases in the HISTORICAL CLIMATOLOGY SERIES (HCS) 3-(1 thru 11) are designed to provide maps of climatological parameters which show climatic fluctuations in a relatively long-term or historical context; the areal coverage of the analyses can be on a local, regional, or continental scale. The data used to produce this series of atlases are in the magnetic tape TD-9640 files. At present, there are 11 publications in this series classification, namely;

HCS 3-1 Atlas of Mean Winter Temperature Departures  
From the Long-Term Mean Over the Contiguous  
United States, 1895-1983 (December 1983)

This atlas presents seasonal maps of departures of mean winter (December, January, February) temperatures from long-term mean (1895-1979) temperatures over the contiguous United States for each of the 89 seasons in this period. The atlas provides the user of climatic information with a reference that contains the longest available sequence of maps which depict the spatial distribution of winter season temperature relative to the long-term mean. The maps also present a statistical measure of the degree of unusualness of the departures by giving standardized departures (seasonal values minus the long-term mean divided by the standard deviation).

HCS 3-2 Winter (December-February)

HCS 3-3 Spring (March-May)

HCS 3-4 Summer (June-August)

HCS 3-5 Fall (September-November)

This four-volume atlas presents maps of departures from long-term (1895-1983) statewide average monthly and seasonal temperatures, by year, for the contiguous United States. The departures are standardized, and are shown by one of five well-defined categories. The maps are arranged by year and serve to illustrate the degree of unusualness of any given season over the contiguous United States, as well as the variability which can occur between months within a season. Statewide average temperatures used in calculating departures for this atlas were derived from areally-weighted climatic division averages, Areally-Weighted Data for the period 1931-1983. For 1895-1930, they consist of equally-weighted temperatures from all available reporting stations within a state. Several adjustments to the data from 1895-1930 were made in order to make the entire series (1895-1983) representative of the statewide averages as though calculated from climatic divisional data.

For each season and each month, five categories of temperature departure from the 1895-1983 mean are indicated for each state by various types of shading. The five quantitatively-defined categories are qualitatively referred to as MUCH ABOVE NORMAL, ABOVE NORMAL, NORMAL, BELOW NORMAL, and MUCH BELOW NORMAL. Monthly and seasonal data are usually well represented by the normal distribution; therefore, the Z-score (or standardized departures from average) was used to classify, by category, each month and season for a state. The monthly or seasonal Z-score for the year (i) is calculated as  $Z_i = (T_i - \bar{T})/s$ , where  $T_i$  is the year (i) seasonal or monthly mean temperature for a given state,  $\bar{T}$  is the mean temperature across the state (1895-1983), and s is the standard deviation of the monthly or seasonal mean temperatures (1895-1983). Each of the two categories MUCH ABOVE NORMAL or MUCH BELOW NORMAL contains 10% of the seasons (or months), each of the two categories ABOVE NORMAL or BELOW NORMAL has 20% of the seasons (or months), and the NORMAL category contains 40% of the seasons (or months).

HCS 3-6 Atlas of Monthly Palmer Hydrological Drought Indices (1895-1930) for the Contiguous United States (February 1985)

HCS 3-7 Atlas of Monthly Palmer Hydrological Drought Indices (1931-1983) for the Contiguous United States (February 1985)

The Palmer Hydrological Drought Index is an objective measure of moisture conditions, applicable to the United States. It is a quantitative indicator of water availability (i.e., soil moisture, streamflow, and lake levels), and is strongly dependent on slow response water storage parameters. This pair of atlases contains maps of the index on a monthly basis, which serve to illustrate the spatial and temporal variability of hydrological drought in the contiguous United States. Seven categories of drought are delineated by various thresholds of drought and wetness. The atlases are especially useful to water resource managers, economists, hydrologists, climatologists, and geographers. The maps are invaluable if used appropriately; their interpretation requires familiarity with the Palmer Drought Model.

The map depictions are by state climatic divisions (see Historical Climatology Series 4-Areally-Weighted Data). HCS 3-6 is for the years 1895-1930; for that period, the divisional averages of temperature and estimates of total monthly precipitation were obtained by a series of regression equations which related statewide monthly temperature and precipitation amounts to divisional values. HCS 3-7, for the period 1931-1983, is based entirely on state climatic divisional data.

HCS 3-8 Atlas of Monthly Palmer Moisture Anomaly Indices (1895-1930) for the Contiguous United States (February 1985)

HCS 3-9 Atlas of Monthly Palmer Moisture Anomaly Indices (1931-1983) for the Contiguous United States (February 1985)

These atlases, which depict areal distributions of monthly values of the Palmer Moisture Anomaly (Z) Index, are of the same format, derivation, and utility as HCS 3-6 and 3-7 described above. The value of Z is regarded as the "moisture anomaly index," and expresses on a monthly basis (from a moisture standpoint) the departure of the weather of a particular month from the average moisture climate of that month. Z values reflect short-term moisture deficiencies or excesses, and the index is quite sensitive to unusually wet (dry) months even in an extended period of dry (wet) weather.

HCS 3-10 Atlas of Monthly Palmer Drought Severity  
Indices (1895-1930) for the Contiguous United  
States (February 1985)

HCS 3-11 Atlas of Monthly Palmer Drought Severity  
Indices (1931-1983) for the Contiguous United  
States (February 1985)

This pair of atlases is of the same format and derivation as HCS 3-6 and 3-7 described above. The Palmer Drought Severity Index, in contrast to the Palmer Hydrological Drought Index, is a meteorological drought index which attempts to classify spells of weather. This means that once the weather begins to change to a new regime, the index will rapidly respond, regardless of soil moisture conditions, streamflow, or lake levels, etc. The index is not very dependent on water storage parameters during wet/dry transition periods, as is the Hydrological Drought Index. As a meteorological drought index, it has been used in meteorological and climatological studies where the classification of spells of wet or dry weather was important.

This file is available for purchase from the NCDC.

FILE TAG: FA00029.

FILE NAME: HISTORICAL CLIMATOLOGY SERIES 4- ; AREAL WEIGHTED DATA.

TIME PERIOD: January 1931 through the present (updated monthly, published periodically).

GEOGRAPHIC COVERAGE: United States except Alaska and Hawaii.

FILE SIZE: 3 publications, 5 microfiche.

FORMAT: Sequential data weighted by area with averages and standard deviations.

FILE STRUCTURE: There are three publications in this file which are on microfiche and filed in the NCDC archives, namely;

1. HCS 4-1; State, Regional, and National Monthly and Annual Temperatures Weighted by Area, January 1931-December 1985, on 2 microfiche,
2. HCS 4-2; State, Regional, and National Monthly and Annual Total Precipitation Weighted by Area, January 1931-December 1987, on 2 microfiche,
3. HCS 4-3; Regional and National Monthly, Seasonal, and Annual Temperatures Weighted by Area, 1895-1983, on one microfiche.

The historical data presented in these publications are also included in magnetic tape TD-9640 files. A stock of the latest periodic issue, and monthly updates which are presented in the subscription file HISTORICAL CLIMATOLOGY SERIES 5-1 and 5-2, is maintained by the NCDC.

CONTENTS: HCS 4-1 and 4-2 contain monthly sequential temperature (Deg. F) or precipitation (in.) averages weighted by area that are calculated from state climatic divisional data; long-term means and standard deviations are included. Annual values are ranked relative to the entire period of record. The regional values are for the nine census regions as defined and used by the Bureau of Census.

HCS 4-3 contains areally-averaged temperatures (Deg. F) data for the Nation and nine "climatologically defined" groups of states (regions). Tabular listings give the average temperatures by month, and groups of months (which include the seasons and year) for the individual years in the period of record. The rank of the year-value of the calendar event is also given, which facilitates the identification of inter-annual and intra-season climate variability. Time series plots of annual mean temperatures for the Nation and each region depict the inter-annual variation about the long-term (1895-1983) mean temperature.

ABSTRACT:

The arithmetic average of meteorological data from stations lying within a predetermined area may not be physically representative if the geographical area is characterized by subareas which have distinct and differing climatologies. A meaningful climatological average can be obtained by arithmetic averaging if the geographical region is climatologically homogeneous; or, if that is not the case, by arithmetically averaging station data from climatologically homogeneous subregions and then weight-averaging the subregion averages. To be realistic, the weight must be the percentage of the total area represented by the climatologically homogeneous subregion. As an example of the above, the arithmetic average of temperature data from stations in North Carolina would not represent the average state temperature because there are eight subregions of North Carolina which have distinct climatologies. These range from that of a low coastal region type climatology to that of a high mountainous region type climatology. The continental United States has over 300 distinct climatological subregions, each which lie within a state, and are called "state climatic divisions" in the climatological records. A division represents a region within a state that is, as nearly as possible, climatically homogeneous.

The data summaries in HCS 4-3 differ significantly, in some respects, from those given in HCS 4-1 described above. The differences are:

1. The period-of-record for HCS 4-1 is 1931-1982 (52 years), whereas this publication contains data for the 89-year period, 1895-1983.
2. This publication does not contain individual state data.
3. This publication contains month-grouped data which includes the usual seasonal monthly groups; Winter (December-February), Spring (March-May), Summer (June-August), and Fall (September-November).
4. The rank order in this publication is opposite to that given in HCS 4-1; i.e., here the number one rank is the coldest temperature, whereas in HCS 4-1 it is the warmest temperature.
5. The definitions of the regions, in terms of specific groupings of contiguous states, differ significantly. In HCS 4-1 the regions are the nine census regions as defined and used by the Bureau of the Census; in this publication the nine regions are climatologically-defined groups of adjoining states which were shown to be climatically similar during the period 1895-1981.



This file is available for purchase from the NCDC.

FILE TAG: FA00333.

FILE NAME: HISTORICAL CLIMATOLOGY SERIES 5-3, PERCENT OF NORMAL STATE, REGIONAL, AND NATIONAL MONTHLY AND SEASONAL HEATING DEGREE DAYS WEIGHTED BY POPULATION; HISTORICAL CLIMATOLOGY SERIES 5-4, PERCENT OF NORMAL STATE, REGIONAL, AND NATIONAL MONTHLY AND SEASONAL COOLING DEGREE DAYS WEIGHTED BY POPULATION.

TIME PERIOD: Heating degree days July 1931 through June 1983 and cooling degree days January 1931 through December 1982 (updated monthly).

GEOGRAPHIC COVERAGE: United States except Alaska and Hawaii.

FILE SIZE: 2 publications, 4 microfiche.

FORMAT: Sequential accumulated tabular data.

FILE STRUCTURE: A stock of the two publications is maintained by the NCDC. In addition, they are on two microfiche per publication and filed in the NCDC archives.

CONTENTS: These publications contain the percent of normal of the degree day data given in HISTORICAL CLIMATOLOGY SERIES 5-1 and 5-2. The values were derived for each month and year by dividing the accumulated degree day value by the corresponding 1951-1980 normal value. The percent of normal values are sequential monthly.

ABSTRACT: The two publications in this file are updated and published every two years. However, subsequent percent of normal values are included in monthly updates to the HISTORICAL CLIMATOLOGY SERIES 5-1 and 5-2.

This file is available for purchase from the NCDC.

FILE TAG: FA00048.

FILE NAME: HISTORICAL CLIMATOLOGY SERIES 6-1; STATEWIDE AVERAGE CLIMATIC HISTORY (STATE).

TIME PERIOD: Late 1800's through 1982.

GEOGRAPHIC COVERAGE: United States except Alaska and Hawaii.

FILE SIZE: 48 publications, 48 microfiche.

FORMAT: Monthly, seasonal, and annual tabular data, statistical data and time series plots.

FILE STRUCTURE: A stock of these publications, one per state except Alaska and Hawaii, is maintained by the NCDC. They are also on one microfiche per state and filed in the NCDC archives.

CONTENTS: Each publication presents narrative information on; data descriptions and presentations, tabular data, and time series plots. State tabular data include 1) monthly, seasonal, and annual temperatures (Deg. F), precipitation (in.), and heating and cooling degree days (base 65 Deg. F) for each year along with their ranking for the period of record, 2) monthly and annual Palmer Drought Severity Index and Palmer Hydrological Drought Index for each year along with their ranking for the period of record, and 3) the period of record maximum, minimum, average, standard deviation and the 5th and 95th percentiles of the parameters in 1) and 2).

State Climatic Divisions tabular data include monthly Palmer Drought Severity Index and Palmer Hydrological Drought Index, along with their ranking for each year 1931 through 1982, and the maximum, minimum, average, standard deviation, and 5th and 95th percentiles of these values for the period of record.

Time series plots for the State include 1) seasonal mean temperatures (Deg. F), total precipitation (in.), total heating degree days and cooling degree days (base 65 Deg. F), and 2) annual maximum, median, and minimum Palmer Drought Indices for the period of record.

ABSTRACT: Each state publication in the HISTORICAL CLIMATOLOGY SERIES 6-1 presents historical climate data in the form of time series plots and table listings for temperature, precipitation, population weighted heating and cooling degree days, and drought indices. The finest time and space resolution is one month and one state climatic division. Drought indices are presented on a divisional basis from 1931 through 1982, and on a statewide basis

from the late nineteenth century through 1982. All other data are presented on a statewide basis.

These data are presented so that climate anomalies can be identified in the context of inter-annual climate variability. All data presented in this series of publications are also available in magnetic tape TD-9640 files.

Users of these data for the years prior to 1931 in the mountainous Western United States, particularly for the State of Arizona, should be aware that the spatial distribution of stations within many of these states has not been homogeneous. As a result, the data during the early portion of record in these states should be viewed with caution.

This file is available for purchase from the NCDC.

FILE TAG: FA00065.

FILE NAME: MONTHLY PRECIPITATION PROBABILITIES DERIVED FROM 1951-1980 NORMALS (State); CLIMATOGRAPHY OF THE UNITED STATES NO. 81 (1951-1980) SUPPLEMENT 2.

TIME PERIOD: 1951-1980 (updated decennially).

GEOGRAPHIC COVERAGE: Selected stations; United States, U. S. Pacific Islands, U. S. Virgin Islands, and Puerto Rico.

FILE SIZE: 53 publications, 53 microfiche.

FORMAT: Probability levels of precipitation for selected stations within each state or area.

FILE STRUCTURE: There is one publication and one microfiche for each state or area. A stock of the publications is maintained by the NCDC and the microfiche are filed in the NCDC archives.

CONTENTS: The major parameters that make up this file are probability levels that the monthly and annual precipitation will be equal to or less than indicated precipitation amounts. The publication presents probability levels of .10, .50, and .90 for each station and the microfiche presents probability levels of .05, .10, .20, .30, .40, .50, .60, .70, .80, .90, and .95.

ABSTRACT: The primary source of data used to produce this file was magnetic tape TD-9641 files which include sequential monthly and annual precipitation totals for selected stations for the period January 1951 through December 1980. The values in this file were determined from the incomplete gamma distribution which is discussed in the following NOAA Technical Reports that are on four microfiche and filed in the NCDC archives;

1. NOAA Technical Report EDS-24, a Note on a Gamma Distribution Computer Program and Computer Graphs, May 1977 by Crutcher, Harold L.; McKay, Grady F.; Fulbright, Danny C.
2. NOAA Technical Report EDS 30, Gamma Distribution Bias and Confidence Limits, September 1978 by Crutcher, Harold L.; Joiner, Raymond L.

The data in this file are also published in the CLIMATOGRAPHY OF THE UNITED STATES NO. 20 (1951-1980) file.

This file is available for purchase from the NCDC.

FILE TAG: FA00378.

FILE NAME: WORLD WEATHER RECORDS.

TIME PERIOD: 1800-1970 (updated decennially).

GEOGRAPHIC COVERAGE: Selected stations, worldwide.

FILE SIZE: 6 publications, 165 microfiche.

FORMAT: Sequential tables, decade means, and normals.

FILE STRUCTURE: Historical issues and the latest issue of this publication are on microfiche and filed in the NCDC archives as follows;

1. 1800-1920 on 20 microfiche,
2. 1921-1930 on 10 microfiche,
3. 1931-1940 on 11 microfiche,
4. 1941-1950 on 24 microfiche,
5. 1951-1960 on 51 microfiche for
  - a. Volume 1 - North America on 10 microfiche,
  - b. Volume 2 - Europe on 6 microfiche,
  - c. Volume 3 - South and Central America, West Indies, The Caribbean, and Bermuda on 6 microfiche,
  - d. Volume 4 - Asia on 10 microfiche,
  - e. Volume 5 - Africa on 9 microfiche,
  - f. Volume 6 - Antarctica, Australia, Ocean Islands, and Ocean Weather Stations on 10 microfiche,
6. 1961-1970 on 50 microfiche for
  - a. Volume 1 - North America on 6 microfiche,
  - b. Volume 2 - Europe on 9 microfiche,
  - c. Volume 3 - West Indies, South and Central America on 8 microfiche,
  - d. Volume 4 - Asia on 7 microfiche,
  - e. Volume 5 - Africa on 11 microfiche,
  - f. Volume 6 - Islands of the World on 9 microfiche.

A stock of the WORLD WEATHER RECORDS, 1961-1970 issue, is maintained by the NCDC.

CONTENTS: The major parameters that make up this publication are; sequential tables of station pressure (mb), sea level pressure (mb), temperature (Deg. C), and precipitation (mm); the decade average for these parameters for the listed period; and the normals of these parameters.

ABSTRACT:

This publication file of worldwide climatic data was initially prepared by H. H. Clayton and Miss F. L. Clayton and published by the Smithsonian Institute as Volumes 79, 80, and 105 of the Smithsonian Miscellaneous Collections. Volume 79 (1927) contained data from the earliest data available up through 1920. Volume 90 (1934) included data for the decade 1921 through 1930, and Volume 105 (1947) included data for the decade 1931 through 1940.

The U. S. Weather Bureau (National Weather Service) continued the publication of worldwide climatological data with a single volume for the decade 1941 through 1950. This issue also presented long homogeneous records for some stations not included in previous volumes, and for a number of stations in geographic areas not represented previously. Worldwide climatic data for the decade 1951-1960 were gathered, prepared, and published in six volumes by the U. S. Weather Bureau (National Weather Service) in cooperation with the World Meteorological Organization. Although data are generally for 1951 through 1960, data for some stations not previously published are included for the station's entire period of record.

In cooperation with the World Meteorological Organization, the National Oceanic and Atmospheric Administration, National Environmental Satellite Data and Information Service, National Climatic Data Center gathered, processed, and published the 1961 through 1970 decade in six volumes. The NCDC is currently gathering these worldwide climatic data for the 1971 through 1980 decade and expects to update the six volumes during 1986 through 1989.

This file is available for purchase from the NCDC.





FILE TAG: FA00301.

FILE NAME: CLIMATOLOGICAL DATA (STATE).

TIME PERIOD: Mid 1880's through the present (updated monthly).

GEOGRAPHIC COVERAGE: United States, U.S. Pacific Islands, U.S. Virgin Islands, and Puerto Rico.

FILE SIZE: 9,235 microfiche, 1,716 publications.

FORMAT: Monthly and annual publications.

FILE STRUCTURE: Historical publications are on microfiche and filed in the NCDC archives. A stock of publications is maintained for the latest three calendar years and for the current year. Subscriptions are available from the NCDC.

CONTENTS: The monthly issues contain:

1. Daily maximum and minimum temperatures (Deg. F), precipitation (in.) totals, snowfall (in.) and snow on ground (in.) totals, soil temperature (Deg. F) at selected depths, and evaporation (in.) and wind movement (statute miles) totals.
2. Monthly temperature (Deg. F) and precipitation (in.) extremes; monthly average maximum and minimum temperatures (Deg. F), monthly average temperature (Deg. F) with departure from normal, highest and lowest temperatures (Deg. F) and date of occurrence, total heating degree days and cooling degree days (base 65 Deg. F), total number of days the maximum temperature is 90 Deg. F or above and 32 Deg. F or below, total number of days the minimum temperature is 32 Deg. F or below, and 0 Deg. F or below, monthly total precipitation (in.) with departure from normal, greatest day total precipitation (in.) and date, monthly total snowfall (in.), maximum depth of snow (in.) on ground and date, total number of days precipitation totals were 0.1 inch, 0.5 inch, and 1.0 inch or more, and state climatic divisions monthly average temperature (Deg. F) and precipitation (in.) with departures from normal.

Seasonal (July through June) heating degree days (base 65 Deg. F) and snowfall (in.) are published in the July issue. The seasonal (January through December) cooling degree days (base 65 Deg. F) are published in the annual issue.

The annual issue contains monthly and annual station and state climatic division average temperatures (Deg. F) with departure from normal, station monthly

and annual total precipitation (in.) and state climatic division monthly and annual average precipitation (in.) with departure from normal, temperature extremes and freeze data, total evaporation (in.) and wind movement (statute miles), and average and extreme soil temperatures (Deg. F) at selected depths.

**ABSTRACT:**

This publication presents basic climatological data in its monthly and annual issues. It is published for each State or combination of States. The issues for combined States are: Hawaii-Pacific; Maryland-Delaware; New England (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont); and Puerto Rico - U.S. Virgin Islands.

This series was first published by the Weather Bureau in the mid 1880's as the CLIMATE AND CROP SERVICE OF THE WEATHER BUREAU. In February 1906, the title was changed to CLIMATOLOGICAL SERVICE OF THE WEATHER BUREAU. Beginning in July 1909, and continuing through December 1913, the monthly data were included as part of the MONTHLY WEATHER REVIEW, but were presented on a drainage district basis. The annual data, however, were not published under this title. Beginning with January 1914 CLIMATOLOGICAL DATA has been published monthly and annually. A West Indies and Caribbean issue was published through 1952. It was resumed with January 1960 data and was published monthly and annual through 1967 when it was again terminated.

This file is available for purchase from the NCDC.

FILE TAG: FA00438.

FILE NAME: DAILY WEATHER MAPS-WEEKLY.

TIME PERIOD: January 1, 1899 through the present (updated weekly).

GEOGRAPHIC COVERAGE: Contiguous United States.

FILE SIZE: 101 reels 35-millimeter microfilm, 52 publications.

FORMAT: Weekly publications of daily weather maps.

FILE STRUCTURE: Weekly publications are stocked for one year. Historical publications are on reels according to the schedule below, and filed in the NCDC archives. Subscriptions are available from the Public Documents Department, U.S. Government Printing Office, Washington, DC 20402.

<u>Years</u>	<u>Number of Reels</u>
01/99 - 12/12	2 years per reel
01/15 - 12/18	2 years per reel
01/19 - 12/43	2 years per reel
01/60 - 12/79	2 years per reel
01/13 - 12/14	1 reel per year
01/19 - 12/19	1 reel per year
01/44 - 12/59	1 reel per year
01/80 - 12/86	1 reel per year

CONTENTS: Daily; surface weather charts, 500-millibar constant pressure charts, highest and lowest temperature charts, and daily precipitation and amount of precipitation charts.

ABSTRACT: The charts in this file include the former U.S. Weather Bureau DAILY WEATHER MAP publication from January 1899 through December 1959 and subsequent U.S. Weather Bureau or National Weather Service DAILY WEATHER MAPS-WEEKLY SERIES publication.

The historical file is available for purchase from the NCDC.

FILE TAG: FA00333.

FILE NAME: HISTORICAL CLIMATOLOGY SERIES 5-1; STATE, REGIONAL AND NATIONAL MONTHLY AND SEASONAL HEATING DEGREE DAYS WEIGHTED BY POPULATION.

TIME PERIOD: July 1931 through June 1980 (1970 Census),  
July 1931 through June 1982 (1980 Census), and  
subsequent annual issues through  
July 1931 through June 1985 (1980 Census),  
July 1985 through the present (updated monthly).

GEOGRAPHIC COVERAGE: United States except Alaska and Hawaii.

FILE SIZE: 10 microfiche, 37 publications.

FORMAT: Monthly and annual publications.

FILE STRUCTURE: Historical publications are on 2 microfiche per period and filed in the NCDC archives. Monthly and annual publications are stocked for the latest three years. Yearly subscriptions are available from the NCDC.

CONTENTS: The annual issue contains sequential monthly and seasonal heating degree days (base 65 Deg. F) for each State, Region, and the Nation weighted by population. It also includes monthly and seasonal mean values with standard deviations for the period of record.

The monthly (subscription) issue contains monthly; total heating degree days, accumulated heating degree days, and [accumulated heating degree days (Divisions weighted by 1980 population)/accumulated normal] \*100 percentage of 9999.9 = > 10,000. The monthly issue also contains monthly average precipitation and temperature for each State, Region, and the Nation weighted by area which are published periodically in issues of the Historical Climatology Series 4-1 and 4-2.

ABSTRACT: Early this century heating engineers developed the concept of heating degree days as a useful index of fuel requirements. They found when the daily mean temperature is lower than 65 degrees Fahrenheit, most buildings require heat to maintain an inside temperature of 70 degrees Fahrenheit.

The energy crisis of the mid 1970's along with associated higher fuel costs, dictated an increase toward energy conservation. At one time, the crisis was so severe that fuel (oil, gas, natural gas) had to be allotted. An equitable allotment of energy is by population - the larger the population in a given area; the larger the energy consumption. Hence, the National Climatic Data Center developed heating degree days weighted by population. Although the energy crisis has

diminished to some extent since the mid 1970's, there remains a great need to continue efficient management and use of our natural energy resources. The indices in this file are utilized by many managers and engineers within Federal, State, and Local Government Agencies, Utilities, and private enterprise for this purpose.

The historical values for States, Regions, and the Nation are also available in digital file TD-9640.

This file is available for purchase from the NCDC.

FILE TAG: FA00333.

FILE NAME: HISTORICAL CLIMATOLOGY SERIES 5-2; STATE, REGIONAL, AND NATIONAL MONTHLY AND SEASONAL COOLING DEGREE DAYS WEIGHTED BY POPULATION.

TIME PERIOD: January 1931 through December 1979 (1970 Census),  
January 1931 through December 1982 (1980 Census),  
January 1931 through December 1983 (1980 Census),  
January 1931 through December 1984 (1980 Census),  
January 1985 through the present (updated monthly).

GEOGRAPHIC COVERAGE: United States except Alaska and Hawaii.

FILE SIZE: 8 microfiche, 37 publications.

FORMAT: Monthly and annual publications.

FILE STRUCTURE: Historical publications are on 2 microfiche per period and filed in the NCDC archives. Monthly and annual publications are stocked for the latest three years. Yearly subscriptions are available from the NCDC.

CONTENTS: The annual issue contains sequential monthly and seasonal cooling degree days (base 65 Deg. F) for each State, Region, and the Nation weighted by population. It also includes monthly and seasonal mean values with standard deviations for the period of record.

The monthly (subscription) issue contains monthly; total cooling degree days; accumulated cooling degree days, and [accumulated cooling degree days (Divisions weighted by 1980 population)/accumulated normal] \* 100 percentage of 9999.9 = > 10000. The monthly issue also contains monthly average precipitation and temperature for each State, Region, and the Nation weighted by area which are published periodically in issues of the Historical Climatology Series 4-1 and 4-2.

ABSTRACT: Early this century heating engineers developed the concept of heating degree days as a useful index of fuel requirements. In 1969 this idea was adapted to cooling degree days under the assumption, if the daily mean temperature is higher than 65 degrees Fahrenheit, most buildings would require air conditioning to maintain an inside temperature of 70 degrees Fahrenheit. Many managers and engineers with Federal, State, and Local Government Agencies, Utilities, and private enterprise use these indices for the efficient use of air conditioning.

The historical values for States, Regions, and the Nation are also available in digital file TD-9640.

This file is available for purchase from the NCDC.

FILE TAG: FA00334.

FILE NAME: HOURLY PRECIPITATION DATA (STATE).

TIME PERIOD: January 1940 through the present (updated monthly).

GEOGRAPHIC COVERAGE: United States except Alaska, U.S. Pacific Islands, U.S. Virgin Islands, and Puerto Rico.

FILE SIZE: 3,484 microfiche, 1755 publications.

FORMAT: Monthly and annual issues.

FILE STRUCTURE: Historical publications are on microfiche and filed in the NCDC archives. Publications are stocked for the latest three calendar years and the current year. Subscriptions are available from the NCDC.

CONTENTS: Monthly publications contain hourly total precipitation (in.), and monthly maximum precipitation (in.) totals for selected intervals from 15 minutes to 24 hours. They also contain daily and monthly precipitation (in.) totals.

Annual publications contain a station index with monthly and annual precipitation (in.) totals, and annual maximum precipitation (in.) totals by time categories.

The monthly and annual maximum amounts of precipitation for selected intervals from 15 minutes to 24 hours were added to the file after December 1972.

ABSTRACT: This publication is prepared for each State or combination of States, except Alaska. The State combinations are Hawaii-Pacific; Maryland-Delaware; New England (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont), and Puerto Rico-U.S. Virgin Islands. The publication for Hawaii-Pacific was initiated in March 1965 and the one for Puerto Rico-U.S. Virgin Islands in July 1971. A predecessor publication, which began in January 1940, was known as the HYDROLOGIC BULLETIN and was issued by river drainage districts. During June through September 1948, depending on the river drainage district, that publication was discontinued and hourly precipitation values were included in monthly issues of CLIMATOLOGICAL DATA for each State or combination of States. This continued until October 1951, when these data were published under the present title. Hourly precipitation data and maximum precipitation values are also included in digital files TD-3240 and TD-9650.

This file is available for purchase from the NCDC.

FILE TAG: FA00336.

FILE NAME: LOCAL CLIMATOLOGICAL DATA (CITY).

TIME PERIOD: January 1939 through the present (updated monthly).

GEOGRAPHIC COVERAGE: Selected stations; United States, U.S. Pacific Islands, and Puerto Rico.

FILE SIZE: 62 reels 35-millimeter microfilm, 6133 microfiche, and 11,211 publications.

FORMAT: Monthly and annual publications.

FILE STRUCTURE: Historical publications are on 35-millimeter microfilm from January 1939 through December 1948 and on microfiche subsequently. These are filed in the NCDC archives. Publications are stocked for the latest three calendar years and the current year. Subscriptions are available from the NCDC.

CONTENTS: MONTHLY SUMMARIES present daily and monthly values of maximum and minimum temperatures (Deg. F), average temperature with departure from normal (Deg. F), dew point temperature (Deg. F), heating and cooling degree days (base 65 Deg. F), weather types (coded), precipitation (in.), snow and snow on ground (in.), average station pressure (in. Hg), resultant wind direction (10's of degrees) and speed (mph), average wind speed (mph), fastest mile of wind (mph) with direction, sky cover sunrise to sunset and midnight to midnight (10ths), and sunshine (minutes and percent of possible) if available. Also included are hourly precipitation data (in.), maximum short duration precipitation (in.), the actual three hourly observations of sky cover (10ths), ceiling (ft), visibility (miles), weather type, temperature, wet bulb temperature, dew point temperature (Deg. F) relative humidity (%), wind direction (10's of degrees) and speed (mph) along with a table of the averages of these parameters for the month.

The ANNUAL SUMMARY WITH COMPARATIVE DATA contains monthly and annual averages of the above basic climatological data in the Meteorological Data for the Current Year section, a table of the Normals, Means, and Extremes of these same data, and sequential tables of monthly and annual values of average temperature (Deg. F), total precipitation (in.), total snowfall (in.), and total heating degree days and cooling degree days (base 65 Deg. F). Also included is a Station Location Table



showing in detail a history of, and related information about, changes in the locations and exposure of instruments.

ABSTRACT:

This publication is issued monthly and annually for approximately 288 stations. Predecessor issues were first published as the MONTHLY METEOROLOGICAL SUMMARY in 1897. In 1948, the name was changed to MONTHLY CLIMATOLOGICAL SUMMARY, and in 1952 to the present title. The earlier issues varied greatly in format and content from station to station and from time to time. They ranged from a postcard size single-table issue to a seven-page issue containing numerous tables of current and comparative data.

A monthly supplement to the LOCAL CLIMATOLOGICAL DATA was published from 1949 through 1964. It contained frequency tables, tables of averages, and 6-hourly, 3-hourly, or hourly surface weather observations.

Hourly and/or 3-hourly surface weather observations used to prepare this publication are in digital file TD-3280 from January 1948 to the present. Daily data are in digital file TD-3210, and hourly precipitation data in digital file TD-3240 for the same period.

This file is available for purchase from the NCDC.

FILE TAG: FA00446.

FILE NAME: MARINERS WEATHER LOG.

TIME PERIOD: January 1957 through the present (updated quarterly).

GEOGRAPHIC COVERAGE: North Atlantic and North Pacific Oceans.

FILE SIZE: Eight publications.

FORMAT: Narrative and tabular summaries, charts and graphs.

FILE STRUCTURE: Historical publications on microfiche from 1972 through the present can be obtained from the National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161. A limited stock of this publication is maintained by the NCDC for the latest two years. Subscriptions are available from the U. S. Government Printing Office, Superintendent of Documents, Washington, DC 20402.

CONTENTS: This publication presents narrative summaries on general weather conditions prevailing over the North Atlantic and North Pacific Oceans (monthly), cyclone-track charts, and tabular summaries of Selected Gale and Wave Observations, and U. S. Ocean Buoy Climatological Data. Also included are Hints to Observers, Tips to Radio Officers, Hurricane Alley, a Marine Weather Diary, and other articles which may be useful to mariners.

ABSTRACT: This publication is issued in magazine form and contains articles, descriptions, and data of a marine meteorology and oceanographic nature. Through the various articles, mariners and other interested individuals are kept abreast of the most current operational uses of marine weather and oceanographic data.

The marine weather review included in the magazine contains both a smooth and rough weather log. The smooth weather log (complete with cyclone tracks, climatological data from U. S. Ocean Weather Station Hotel and buoys, and gale and wave tables) is a definitive report on normal monthly weather systems, the primary storms that affected marine areas, and ship casualties for three months. The rough log is a preliminary account of the weather for three more recent months, prepared as soon as the necessary meteorological analyses and other data become available.

Another feature of this magazine is the marine weather diary. This section discusses the general weather features (gales, winds, cyclones, sea heights, and visibility) over the upcoming 3-month period in the North Atlantic and North Pacific Oceans. Also included

in the magazine is a special hurricane section as well as a section dealing with current projects and relevant scientific/meteorological occurrences.

This file is available for purchase from the NCDC.

FILE TAG: FA00337.

FILE NAME: MONTHLY CLIMATIC DATA FOR THE WORLD.

TIME PERIOD: May 1948 to the present (updated monthly).

GEOGRAPHIC COVERAGE: Global-selected locations in most countries that are members of the World Meteorological Organization.

FILE SIZE: 312 microfiche, 36 publications.

FORMAT: Monthly publications.

FILE STRUCTURE: Historical publications are on microfiche and filed in the NCDC archives. Publications are stocked for the latest three calendar years and the current year. Subscriptions are available from the NCDC.

CONTENTS: Surface data included are monthly; mean station pressure (MB), mean sea level pressure (MB), mean vapor pressure (MB) with departure from normal, mean temperature (Deg. C) with departure from normal, total precipitation (mm) with departure from normal, total number of days with precipitation equal to or greater than one millimeter, and percentage of long-term average sunshine. Upper air data presented are monthly means of; height (geopotential meters), temperature (Deg. C), dew point temperature depression (Deg. C), and vector wind direction (whole degrees) and speed (mps) with the steadiness factor for the surface and constant pressure levels of 850-, 700-, 500-, 300-, 200-, 150-, 100-, 50-, and 30-millibars.

ABSTRACT: This publication, which is prepared in cooperation with the World Meteorological Organization, contains monthly means (in metric units) of surface and upper air data for many locations throughout the world. Annual issues are not published. It originated in May 1948 under the title MONTHLY CLIMATIC DATA FOR THE WORLD BY CONTINENTS as a 4-page mimeographed issue. The title was changed to MONTHLY CLIMATIC DATA FOR THE WORLD in July 1948; MONTHLY CLIMATIC DATA FOR WORLD in August 1948; and to its present title in May 1949.

The historical surface data in this file are included in digital file TD-9645 and the historical upper air data in digital file TD-9648.

This file is available for purchase from the NCDC.

FILE TAG: FA00349.

FILE NAME: STORM DATA.

TIME PERIOD: January 1959 through the present (updated monthly).

GEOGRAPHIC COVERAGE: United States, U.S. Pacific Islands, U.S. Virgin Islands, and Puerto Rico.

FILE SIZE: 99 microfiche, 36 publications.

FORMAT: Monthly publications.

FILE STRUCTURE: Historical publications are on microfiche and filed in the NCDC archives. Publications are stocked for the latest three calendar years and the current year. Subscriptions are available from the NCDC.

CONTENTS: This monthly publication consists of three sections that present;

1. Outstanding Storms of the Month (added with the July 1981 issue) which include select analyzed maps and photographs of storms collected from all over the country. This section also includes a climatological map of all the tornadoes in each month, 1916 to the present.
2. Descriptions of Storms in Each State with Death, Injury, and Damage Statistics that provide chronological listings by state or area and include official descriptions of "extreme" weather events as confirmed and selected by the National Weather Service on such phenomena as cold waves, hard freeze, freezing rain, blizzard, heavy snow, chinook, tornado, waterspout, dust devil, whirlwind, downburst, hailstorm, heat wave, drought, tropical storm, hurricane, flash flood, and lightning.
3. Hurricanes and Tropical Storms - included are descriptions of storms. This section may also include analyzed maps, photographs, satellite photographs, and tracking charts of individual storms.

Since December 1981, the December issue also includes North Atlantic Tropical Cyclones for the year with a tracking chart, General Summary of Tornadoes, and General Summary of Lightning.

ABSTRACT: Storm Data is a monthly publication - no annual issues are prepared. The Outstanding Storms of the month are gathered from official sources and prepared for publication by Dr. T. Fujita, Physical Sciences Department, University of Chicago, Chicago, Illinois. The Descriptions of Storms in Each State are gathered

and prepared for publication by National Weather Service Offices and State Climatologists. The Hurricanes and Tropical Storms are gathered from official sources and prepared for publication by the National Weather Service, National Hurricane Center, Miami, Florida.

Chronological listings of Severe Local Storms (particularly tornadoes) were published in the MONTHLY WEATHER REVIEW from January 1922 through December 1949. Storms were also listed in yearly issues of the REPORT OF THE CHIEF OF THE WEATHER BUREAU from January 1929 through December 1934 and the METEOROLOGICAL YEARBOOK from January 1935 through December 1949. From January 1950 through December 1958, Severe Local Storms or Storm Data and Unusual Phenomena, were published in monthly issues of CLIMATOLOGICAL DATA NATIONAL SUMMARY. Annual issues of CLIMATOLOGICAL DATA NATIONAL SUMMARY from 1950 through 1980 included a yearly North Atlantic Tropical Cyclone summary and a General Summary of Tornadoes. The annual issues for 1978, 1979, and 1980 also included a General Summary of Lightning. All of these publications, except for the MONTHLY WEATHER REVIEW, are available on microfiche from the NCDC.

Related files are TD-9697 Storm Tracks, TD-9617 Lightning Statistics Derived from Storm Data, and TD-9714 Tornado Data.

This file is available for purchase from the NCDC.

FILE TAG: FA00440.

FILE NAME: WEEKLY WEATHER AND CROP BULLETIN.

TIME PERIOD: January 1924 through the present (updated weekly).

GEOGRAPHIC COVERAGE: World.

FILE SIZE: 3,224 publications through 1985.

FORMAT: Weekly publications.

FILE STRUCTURE: Publications are stocked for one year by the NCDC. Subscriptions are available from the NOAA/USDA Joint Agricultural Weather Facility, USDA South Building, Room 5844, Washington, D.C. 20250.

CONTENTS: This weekly publication contains narrative and tabular summaries, and charts. Narrative summaries include a National Weather Summary, a section of State Summaries of Weather and Agriculture, a National Agricultural Summary, and an International Weather and Crop Summary. Tabular summaries presented are weekly average temperature (Deg. F) and total precipitation (in.) with departures from normal, and weekly total heating degree days (base 65 Deg. F) and seasonal accumulations with departures from normal and from the previous season. The first issue of each month includes tabular summaries of the previous month's average temperature (Deg. F) and total precipitation (in.). Weekly charts of the total precipitation (in.) and average temperature (Deg. F) with departures from normal are shown while a chart depicting the depth of snow (in.) on the ground is included during the winter season. A variety of other charts may be included on such things as Crop Moisture, Crop Moisture Index, Drought, Drought Severity, Soil Temperatures, Accumulated Growing Degree Days and Extended Weather Outlooks.

ABSTRACT: This weekly periodical, prepared jointly by the National Oceanic & Atmospheric Administration and the U.S. Department of Agriculture, is especially valuable to agricultural interests. It summarizes weather and its effects on crops and farm activities for the week over the United States and other areas of the world as feasible.

This publication began in November 1872 and continued through April 1881 as the WEEKLY WEATHER CHRONICLE. From June 1884 through April 1887 it was known as a SPECIAL BULLETIN; from May 1887 through January 1896 as the WEATHER CROP BULLETIN; from February 1896 through August 1904 as the CLIMATE & CROP BULLETIN; from September 1904 through January 1906 as the WEATHER CROP BULLETIN; from February 1906 through June 1914 as the

NATIONAL WEATHER BULLETIN; from July 1914 through December 1921 as the NATIONAL WEATHER & CROP BULLETIN; and from January 1922 through December 1923 as WEATHER, CROPS, AND MARKETS.

Although the NCDC does not archive this publication, the latest 52 weekly issues, or copies of previous issues in their file, are available for purchase.



FILE TAG: FA00087.

FILE NAME: INDEX OF ORIGINAL SURFACE WEATHER RECORDS (STATE).

TIME PERIOD: Beginning of record (generally 1890) through 1981 (updated periodically).

GEOGRAPHIC COVERAGE: United States, U. S. Pacific Islands, U. S. Virgin Islands, and Puerto Rico.

FILE SIZE: 52 publications, 113 microfiche.

FORMAT: State, or area, indices.

FILE STRUCTURE: These Indexes are on two microfiche for each state or area except; four each for Alaska and California, and three each for Florida, Michigan, New York, Texas, and Washington. The Pacific Islands is one area and the U. S. Virgin Islands and Puerto Rico are combined for an area. The microfiche are filed in the NCDC archives. The NCDC also maintains a stock of these Indexes.

CONTENTS: Each publication presents indices of historical recording stations, alphabetic by station and by year. A listing of the hourly surface weather observation, synoptic weather observation, supplementary weather observation, and radar observation forms; and barogram, thermogram, triple register, wind recorder, and relative humidity recorder charts filed in the NCDC archives historically is presented for each station.

ABSTRACT: This file is the published historical compilation of original manuscript and autographic records filed in the NCDC archives. An INDEX OF ORIGINAL SURFACE WEATHER RECORDS was compiled and published for each state, the Pacific Islands, and the combined U. S. Virgin Islands and Puerto Rico area. It is intended to provide users of historical meteorological manuscript and autographic records information on their availability for stations (cities) that are filed in the NCDC archives.

This file is available from the NCDC.

FILE TAG: FA00165.

FILE NAME: STAR TABULATIONS MASTER LIST.

TIME PERIOD: Variable (updated periodically).

GEOGRAPHIC COVERAGE: Selected stations; United States, U. S. Pacific Islands, U. S. Virgin Islands, Puerto Rico, and 23 worldwide.

FILE SIZE: One publication.

FORMAT: Indices.

FILE STRUCTURE: This publication is stocked by the NCDC.

CONTENTS: The STAR TABULATIONS MASTER LIST presents indices of all tabulations prepared by station, period of record summarized, type of summarization (monthly, seasonal, annual, or combination thereof), number of stability classifications (5-8) summarized, and number of hourly weather observations used each day to prepare the tabulations.

ABSTRACT: The STAR TABULATIONS MASTER LIST identifies the stations for which unpublished STAR (Stability Array) tabulations have been prepared and filed in the NCDC archives. These tabulations are prepared using the methodology developed by air-pollution meteorologists in their attempt to produce information that would be useful in assessing the air-pollution potential at locations for which only surface meteorological data are available. They are based upon the ceiling height, total sky cover, and wind data recorded in the hourly surface weather observations. These tabulations are stored as computer printouts and/or in magnetic tape TD-9773 files in the NCDC archives.

This file is available from the NCDC.

FILE TAG: FA00319.

FILE NAME: STATION LIST - CLIMATOGRAPHY OF THE UNITED STATES NO. 20, THROUGH 1985 (State).

TIME PERIOD: Beginning of record through 1985 (updated decennially).

GEOGRAPHIC COVERAGE: United States and Puerto Rico.

FILE SIZE: 51 publications.

FORMAT: Station location maps and station indices.

FILE STRUCTURE: A stock of these publications for each state and Puerto Rico is maintained by the NCDC.

CONTENTS: Each state publication presents indices, alphabetically by station, of CLIMATOGRAPHY OF THE UNITED STATES NO. 20 publications issued using data for the years 1951-1980, 1951-1974, and for previous years. Also, a state map in each STATION LIST depicts the location of the NO. 20 sites for each issue of the series.

ABSTRACT: The National Climatic Data Center's CLIMATOGRAPHY OF THE UNITED STATES NO. 20 series of summaries presents climate data from selected sites in the National Weather Service cooperative observation network. The contents of the issues are described in that file and in the NCDC Environmental Information Summary (EIS) C-26. This STATION LIST gives the station inventory, by state, for each issue based on the period-of-record of the observational data (1951-1980, 1951-1974, and previous years) of the series. The inventory is arranged by issue and gives the station number, location (latitude, longitude), elevation from sea level, and period-of-record for each site, in an alphabetically ordered list. Also, state maps depict the location of NO. 20 sites for each issue of the series.

This file is available from the NCDC.

FILE TAG: FA00086.

FILE NAME: WIND SUMMARY INDEX.

TIME PERIOD: Variable; all summaries completed through June 1, 1984 (updated periodically).

GEOGRAPHIC COVERAGE: United States and Puerto Rico.

FILE SIZE: One unpublished 247-page inventory, one publication, and three microfiche.

FORMAT: Narrative descriptions, sample tabulations, and alphabetical indices by state.

FILE STRUCTURE: The historical publication INDEX - SUMMARIZED WIND DATA (1977) is on three microfiche and filed in the NCDC archives. Copies of the unpublished inventory are available to users for the cost of reproduction.

CONTENTS: The indices are alphabetical by state and list by station 1) the type of wind summaries, 2) the periods of record summarized, 3) the frequency of the summaries (monthly, seasonal, annual, or combination thereof), and 4) the latitude, longitude, and elevation of the station during each period of record summarized.

The historical INDEX - SUMMARIZED WIND DATA (1977) on microfiche presents two indexes of various types of historical wind summaries. Part I is a Geographical List in state-city order presenting all the wind summaries prepared without regard to the type. Part II is a Summary Type List of available wind summaries, also in state-city order. This INDEX also presents a sample of each type of wind summary listed.

ABSTRACT: The INDEX-SUMMARIZED WIND DATA (M. Changery, W. T. Hodge, September 1977) was prepared as an aid in the identification of wind summaries filed in the NCDC archives. The WIND SUMMARY INDEX (M. P. McGuirk, June 1984) is an updated inventory of the September 1977 publication.

During the last 50 years, the NCDC, the U. S. Air Force Air Weather Service, and the U. S. Navy Naval Oceanographic Command have prepared summaries of wind data in various formats and covering various periods of time. Many of the older summaries were produced by hand, tabulating data from manuscript records, while more recent summaries were produced from digital data. All summaries were filed in the NCDC archives but a complete and accurate index of these summaries was not available.

The WIND SUMMARY INDEX is intended to be a guide to the various types of wind summaries filed in the NCDC archives. It does not present the actual summaries or original wind data, but lists the locations and periods of record for which wind summaries in various formats are available to users.

This file is available for purchase from the NCDC.